Austin, Aaron

From: Linnell, Eric
Sent: Friday, August 17, 2007 2:55 PM
To: Austin, Aaron
Subject: AUS155

AUS155.rtf

(Please be aware that in many instances, Chemical Abstracts indexers normalized the authors' formulas by multiplying by a multplier, "3" in the case of formula 1, "2" in the case of formula 2, so that stoichiometrically, the materials would have integer values rather that fractional ones. However, their ratios in relation to other elements present remain the same.)

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=> FILE REG
FILE 'REGISTRY' ENTERED AT 14:03:22 ON 17 AUG 2007
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=> DISPLAY HISTORY FULL L1-

    FILE 'REGISTRY' ENTERED AT 12:43:06 ON 17 AUG 2007
L1      22599 SEA (BA OR SR OR CA OR BE)/ELS (L) (TA OR NB)/ELS
L2      21383 SEA L1 (L) O/ELS
L3       4282 SEA L2 (L) (AL OR LA OR ND OR GD OR ER OR LU OR DY OR
              TB)/ELS
L4        290 SEA L3 (L) 4/ELC.SUB
L5         59 SEA L4 AND 3.00<=O<=4.00
L6         91 SEA L4 AND 1.00<=BA<=2.00
L7        131 SEA L4 AND 1.00<=SR<=2.00
L8         67 SEA L4 AND 1.00<=CA<=2.00
L9          1 SEA L4 AND 1.00<=BE<=2.00
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L15    352078 SEA INSULAT?
L16    222849 SEA MP OR MPS OR M(W)P OR MELT?(2A)(POINT# OR PT#)
L17    111080 SEA (THERMAL? OR HEAT?)(2A)(EXPAND? OR EXPANS? OR COEF?)
              OR (EXPAND? OR EXPANS?)(2A)COEF?
L18    230914 SEA SINTER?
L19        23 SEA L14 AND L15
L20        10 SEA L14 AND L16
L21        12 SEA L14 AND L17
L22        18 SEA L14 AND L18
L23        23 SEA L5
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L25         6 SEA L24 AND (L15 OR L16 OR L17 OR L18)

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L26       231 SEA VASSEN ?/AU
L27       276 SEA JUNGEN ?/AU
L28      1293 SEA STOVER ?/AU
L29     21966 SEA SCHWARTZ ?/AU OR LUCKGE ?/AU OR SCHWARTZ LUCKGE ?/AU
              OR LUCKGE SCHWARTZ ?/AU
L30         1 SEA L26 AND L27 AND L28 AND L29
L31         1 SEA L26 AND L27 AND L28
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L33        27 SEA L29 AND L13
L34        51 SEA L32 OR L33
              SEL L34 1-51 RN

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              SEL L36 2,3 RN
L37         2 SEA (12250-59-8/BI OR 12251-88-6/BI)

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L42        1 SEA L40 AND L41

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L47        0 SEA L4 AND 2/BE
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L50       23 SEA L45 AND L43
L51       16 SEA L46 AND L43

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L56        8 SEA L54 AND L16
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L58       15 SEA L54 AND L18
L59       18 SEA L41 OR L52
L60       25 SEA (L55 OR L56 OR L57 OR L58) NOT L59
L61       18 SEA 1840-2003/PY,PRY AND L59
L62       19 SEA 1840-2003/PY,PRY AND L60

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             SEL L64 1,5 RN
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L66        6 SEA L25 NOT (L61 OR L62)

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L73       26 SEA L69 AND L72
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L78        4 SEA (L24 OR L25 OR L19 OR L20 OR L21 OR L22) AND L74
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L80        0 SEA L78 NOT (L61 OR L62 OR L79)

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             A8)/PG OR (C OR H OR RA OR V OR S OR SE OR TE OR
             PO)/ELS)
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             SAV L4 AUS155A/A
L83      112 SEA L82 AND 3/O
L84       65 SEA L82 AND 9/O
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L86 237 SEA L84
L87 347 SEA (L85 OR L86) AND L13
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L89 2 SEA L87 AND L74
L90 7 SEA L87 AND L16
L91 10 SEA L87 AND L17
L92 87 SEA L87 AND L18
L93 39 SEA L88 AND L92
L94 2 SEA L93 AND L85 AND L86
L95 18 SEA L75 OR L76 OR L77 OR L89 OR L90 OR L91 OR L94
L96 16 SEA 1840-2003/PY,PRY AND L95
L97 54987 S (THERMAL? OR THERMO? OR HEAT?)(2A)INSULAT?
L98 3 S (L85 OR L86) AND L97
L99 2 S L98 NOT L96
L100 0 S 1840-2003/PY,PRY AND L99
L101 1 S L38 AND L97
L102 1 S L12 AND L97
L103 0 S L102 NOT (L61 OR L62 OR L79)
L104 0 S L101 NOT (L61 OR L62 OR L79)

=> FILE HCA
FILE 'HCA' ENTERED AT 14:03:42 ON 17 AUG 2007

(FORMULA 1)

=> D L96 1-16 BIB ABS HITSTR HITIND

L96 ANSWER 1 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 141:299934 HCA Full-text
TI Compositions for thermal barrier coating having low thermal conductivity and high **thermal expansion coefficient**
IN Akiyama, Katsunori; Nagano, Ichiro; Shida, Masato; Ota, Satoshi
PA Mitsubishi Heavy Industries Ltd., Japan
SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2004085338	A1	20041007	WO 2004-JP4010	20040324

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,

GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,
MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,
VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE,
DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT,
RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG
JP 2005154885 A 20050616 JP 2004-61427
200403
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CA 2519842 A1 20041007 CA 2004-2519842
200403
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EP 1607379 A1 20051221 EP 2004-722995
200403
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,
PL, SK
CN 1764613 A 20060426 CN 2004-80007788
200403
24
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US 2007151481 A1 20070705 US 2007-550097
200701
18
<--
PRAI JP 2003-85609 A 20030326 <--
JP 2003-377119 A 20031106 <--
JP 2004-61427 A 20040304
WO 2004-JP4010 W 20040324

AB The thermal barrier coating material comprises a main component having an orthorhombic or monoclinic structure (for example, a tabular **perovskite** structure represented by the empirical formula: A2B2O7) derived from a **perovskite** structure or a tetragonal layer structure having a c axis/a axis ratio of ≥3 (for example, a K2NiF4 structure, a Sr3Ti2O7 structure and a Sr4Ti3O10 structure), a compn. represented by the empirical formula: LaTaO4, or a compn. having an olivine type structure represented by the empirical formula: M2SiO4 or (MM')2SiO4 wherein M and M' are divalent metal elements. The thermal barrier coating material is novel, free from problems of the phase transition and the like, has a **m.p.** higher than the temp. region for use, and has a thermal cond. less than that of zirconia and a **thermal expansion coeff.** greater than that of zirconia.

IT **12409-79-9**, Calcium tantalum oxide (Ca4Ta2O9)
57143-69-8, Strontium niobate (Sr4Nb2O9)
(compns. for thermal barrier coating having low thermal cond. and
high **thermal expansion coeff.**)

RN 12409-79-9 HCA
CN Calcium tantalum oxide (Ca4Ta2O9) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Ca	4	7440-70-2
Ta	2	7440-25-7

RN 57143-69-8 HCA
CN Niobium strontium oxide (Nb2Sr4O9) (CA INDEX NAME)

Component | Ratio | Component

		Registry Number
O	9	17778-80-2
Sr	4	7440-24-6
Nb	2	7440-03-1

IC ICM C04B035-01
ICS C23C004-10
CC 57-2 (Ceramics)
ST compn thermal barrier coating **thermal** cond
expansion coeff
IT Thermal barrier coatings
(compns. for thermal barrier coating having low thermal cond. and
high **thermal expansion coeff.**)
IT 10034-94-3, Magnesium silicate (Mg2SiO4) 10179-73-4, Iron silicate
(Fe2SiO4) 12013-68-2, Calcium niobate (Ca2Nb2O7) 12029-00-4,
Tungsten yttrium oxide (WY6O12) 12031-17-3, Lanthanum niobate
(LaNbO4) 12031-41-3, Lanthanum nickel oxide (La2NiO4)
12031-47-9, Lanthanum titanium oxide (La2Ti2O7) 12031-59-3,
Lanthanum tungsten oxide (La6WO12) 12034-61-6, Yttrium niobate
(YNbO4) 12035-28-8, Neodymium nickel oxide (Nd2NiO4) 12035-31-3,
Neodymium titanium oxide (Nd2Ti2O7) 12036-99-6, Strontium titanium
oxide (Sr3Ti2O7) 12047-34-6, Barium tantalum oxide (BaTa2O6)
12056-84-7, Lanthanum tantalum oxide (LaTaO4) 12201-67-1, Niobium
strontium oxide (Nb2Sr2O7) 12210-56-9, Samarium tungsten oxide
(Sm6WO12) 12293-74-2, Strontium niobate (Sr5Nb4O15) 12324-42-4,
Dysprosium tungsten oxide (Dy6WO12) 12326-34-0, Tungsten ytterbium
oxide (WYb6O12) 12344-26-2, Neodymium tantalum oxide (NdTaO4)
12409-79-9, Calcium tantalum oxide (Ca4Ta2O9) 12422-09-2,
Calcium niobium oxide (Ca11Nb4O21) 12440-09-4, Strontium tantalum
oxide (Sr2Ta2O7) 12440-21-0, Strontium titanium oxide (Sr4Ti3O10)
13455-33-9, Cobalt silicate (Co2SiO4) 13568-32-6, Manganese
silicate (Mn2SiO4) 13718-36-0, Lanthanum silicate (La2Si2O7)
13775-54-7, Nickel silicate (Ni2SiO4) 13859-60-4, Potassium nickel
fluoride (K2NiF4) 14720-99-1, Dysprosium tungsten oxide (Dy2WO6)
15135-93-0, Calcium manganese silicate (CaMnSiO4) 15185-83-8,
Calcium iron silicate (CaFeSiO4) 37249-65-3, Cerium tungsten oxide
(Ce6WO12) **57143-69-8**, Strontium niobate (Sr4Nb2O9)
109166-61-2, Iron magnesium silicate ((Fe0-1Mg0-1)2SiO4))
109166-66-7, Magnesium manganese silicate ((Mg,Mn)2(SiO4))
110686-49-2, Magnesium nickel silicate ((Mg,Ni)2(SiO4))
111117-48-7, Iron manganese silicate ((Fe,Mn)2(SiO4)) 143712-25-8,
Calcium lanthanum nickel oxide (Ca0.2La1.8NiO4) 345371-56-4,
Barium tantalum zirconium oxide (BaTa1.8Zr0.2O6) 765276-97-9,
Barium tantalum titanium oxide (BaTa1.8Ti0.2O6) 765276-98-0,
Niobium strontium titanium oxide (Nb1.8Sr2Ti0.2O7) 765276-99-1,
Niobium strontium zirconium oxide (Nb1.8Sr2Zr0.2O7) 765277-00-7,
Niobium strontium titanium oxide (Nb1.8Sr4Ti0.2O9) 765277-01-8,
Niobium strontium zirconium oxide (Nb1.8Sr4Zr0.2O9)
(compns. for thermal barrier coating having low thermal cond. and
high **thermal expansion coeff.**)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L96 ANSWER 2 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 140:45946 HCA Full-text
TI **Heat-insulating layer** made of complex
perovskite with a special compns. Ba(Mg1/3Ta2/3)O3
IN Vassen, Robert; Schwartz-Lueckge, Sigrid; Jungen, Wolfgang; Stoever,
Detlev
PA Forschungszentrum Juelich G.m.b.H., Germany
SO PCT Int. Appl., 19 pp.

CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003106372	A1	20031224	WO 2003-DE1924	200306 10 <--

W: JP, US
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR

DE 10226295	A1	20040108	DE 2002-10226295	200206 13
EP 1513781	A1	20050316	EP 2003-759844	200306 10 <--
EP 1513781	B1	20060517		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK

JP 2005537203	T	20051208	JP 2004-513208	200306 10 <--
AT 326439	T	20060615	AT 2003-759844	200306 10 <--
US 2005260435	A1	20051124	US 2005-518155	200507 20 <--

PRAI DE 2002-10226295 A 20020613 <--
WO 2003-DE1924 W 20030610 <--

AB The invention relates to a heat-**insulating layer** made of a material which has a complex **perovskite** structure, having a **m.p.** ≥2500° and a **thermal expansion coeff.** ≥8+10-6 K-1 in addn. to a **sintering** temp. of ≥1400°. The heat-**insulating** material is characterized by a first general formula A1+r (B' 1/3+xB"2/3+y)O3+z, wherein: A = at least one element from the group (Ba, Sr, Ca, Be); B' = at least one element from the group (Mg, Ca, Sr, Ba, Be); B" = at least one element from the group (Ta, Nb), and -0.1 < r, x, y, z < 0,1; or by a second general formula A1+r (B' 1/2+xB" 1/2+y)O3+z, wherein: A = at least one element from the group (Ba, Sr, Ca, Be); B' = at least one element from the group (Al, La, Nd, Gd, Er, Lu, Dy, Tb); B" = at least one element from the group (Ta, Nb), and -0,1 < r, x, y, z < 0.1. One particular advantage of the invention is that the heat-**insulating** material BMT is distinguished by the special compns. Ba(Mg1/3Ta2/3)O3,. The resulting heat-protective layers can be used with or without intermediate layers on the surface of temp.-exposed components.

IT **12231-81-1**, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) **243464-08-6**, Strontium tantalum oxide (Sr1.33Ta0.67O3)
(**perovskite** structured; heat-**insulating layer** made of complex **perovskite** with a special compns. Ba(Mg1/3Ta2/3)O3)
RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7

Mg	0.33	7439-95-4

RN 243464-08-6 HCA
CN Strontium tantalum oxide (Sr1.33Ta0.67O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ta	0.67	7440-25-7
Sr	1.33	7440-24-6

IC ICM C04B035-495
ICS C23C004-10; F16L059-00; F01D005-28
CC 57-2 (Ceramics)
ST **perovskite** thermal **insulator** barium magnesium tantalum oxide
IT Ceramics
Melting point
Perovskite-type crystals
Thermal expansion
Thermal **insulators**
(**heat-insulating layer** made of complex **perovskite** with a special compns. Ba(Mg1/3Ta2/3)O3)
IT **12231-81-1**, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) 12250-59-8, Aluminum calcium niobium oxide (AlCa2NbO6) 12251-88-6, Aluminum strontium tantalum oxide (Al0.5SrTa0.5O3) **243464-08-6**, Strontium tantalum oxide (Sr1.33Ta0.67O3)
(**perovskite** structured; heat-**insulating layer** made of complex **perovskite** with a special compns. Ba(Mg1/3Ta2/3)O3)
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L96 ANSWER 3 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 138:229720 HCA Full-text
TI Structure and properties of nonstoichiometric mixed **perovskites** A3B'1+xB"2-xO9-δ
AU Tao, Shanwen; Irvine, John T. S.
CS University of St. Andrews, School of Chemistry, St. Andrews, Fife, KY16 9ST, UK
SO Solid State Ionics (**2002**), 154-155, 659-667
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier Science B.V.
DT Journal
LA English
AB Nonstoichiometric mixed **perovskites** A3B'1+xB"2-xO9- δ, e.g. Ba3Ca1.18Nb1.82O9-δ, exhibit high proton and oxygen-ion cond. It is expected that mixed ionic and electronic conductors may be found in these compds. if the B-sites are partially substituted by a 1st row transition element. These mixed conductors may be potential anode materials for fuel cell applications. The structure of single phase SrCu0.4Nb0.6O2.9 was studied by both x-ray and neutron diffraction. It is tetragonal with space group P4/mmm (123), a = 3.9608(4) Å, c 3.9757(2) Å, V = 62.37(2) A3 according to neutron diffraction. Rietveld refinement indicates that the oxygen vacancy tends to stay at O1 (1c) site with O2 (2e) fully occupied. AC impedance measurements indicate that electronic conduction is probably dominant in air. The d.c. cond. of SrCu0.4Nb0.6O2.9 at pO2 at 10-22-10-12 atm exhibits a p(O2) -1/4 dependence consistent with n-type electronic conduction. The material was unstable in 5% H2 at elevated temps. but stable in argon at 900°. Using manganese instead of copper, a phase that is redox stable was prepd. SrMn0.4Nb0.6O3-δ exhibits an orthorhombic structure with space group Pbnm (62), a = 5.6451(3) Å, b = 5.6589(2) Å, c 7.9729(2) ÅA, V = 254.69(7) Å3 according to x-ray diffraction. Such a unit cell indicates that it is a double **perovskite** and therefore the formula is better written as Sr2Mn0.8Nb1.2O6-δ. The material maintains **perovskite** structure in 5% H2 although **thermal expansion** was obsd. on redn. The cond. of Sr2Mn0.8Nb1.2O6 is 0.36 S/cm in air at 900°. Cond. decreases in 5% H2 indicates p-type conduction at low pO2.
IT **158634-63-0D**, Barium calcium niobium oxide

(Ba3Ca1.18Nb1.82O9), oxygen-deficient
(structure and elec. properties of nonstoichiometric barium calcium copper manganese niobate mixed **perovskite** ionic conductor)
RN 158634-63-0 HCA
CN Barium calcium niobium oxide (Ba3Ca1.18Nb1.82O9) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Ca	1.18	7440-70-2
Ba	3	7440-39-3
Nb	1.82	7440-03-1

CC 76-2 (Electric Phenomena)
ST barium calcium copper manganese niobate mixed **perovskite** ionic conductor
IT Crystal structure
Ionic conductivity
Ionic conductors
Perovskite-type crystals
Thermal expansion
X-ray diffraction
(structure and elec. properties of nonstoichiometric barium calcium copper manganese niobate mixed **perovskite** ionic conductor)
IT **158634-63-0D**, Barium calcium niobium oxide (Ba3Ca1.18Nb1.82O9), oxygen-deficient 501124-43-2, Copper niobium strontium oxide (Cu0.4Nb0.6SrO2.9) 501124-44-3D, Manganese niobium strontium oxide (Mn0.4Nb0.6SrO3), oxygen-deficient
(structure and elec. properties of nonstoichiometric barium calcium copper manganese niobate mixed **perovskite** ionic conductor)
RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L96 ANSWER 4 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 137:102183 HCA Full-text
TI Dielectric properties and charge transport in the (Sr,La)NbO3.5-x system
AU Bobnar, V.; Lunkenheimer, P.; Hemberger, J.; Loidl, A.; Lichtenberg, F.; Mannhart, J.
CS Institut fur Physik, Elektronische Korrelationen und Magnetismus, Experimentalphysik V, Universitat Augsburg, Augsburg, D-86135, Germany
SO Physical Review B: Condensed Matter and Materials Physics (**2002**), 65(15), 155115/1-155115/8
CODEN: PRBMDO; ISSN: 0163-1829
PB American Physical Society
DT Journal
LA English
AB The dielec. response of **layered perovskite** -related **insulating** SrNbO3.5 and conducting SrNbO3.41, SrNbO3.45, and La0.2Sr0.8NbO3.5 single crystals is investigated. The measurements are performed along the c axis, i.e., perpendicular to the layers, in the frequency range from 1 MHz to 1.8 GHz. The intrinsic dielec. properties could be monitored only at such relatively high measuring frequencies, since strong contact contributions at the sample-electrode interface dominate at low frequencies. In addn. to the known phase transitions in the SrNbO3.5 compd., a phase transition at $T \approx 300$ K in SrNbO3.41 and SrNbO3.45 is reported here. The frequency-dependent ac cond. in all three conducting compds. follows the universal dielec. response behavior. Together with results on the dc cond., this finding indicates that hopping of localized charge carriers, most likely of polaronic character, is the dominating charge-transport process. For all SrNbO3.5-x compds., relatively high values of the dielec. const. are found.
IT **39293-87-3**, Niobium strontium oxide (NbSrO3)
(dielec. properties and charge transport in (Sr,La)NbO3.5-x

system)
RN 39293-87-3 HCA
CN Niobium strontium oxide (NbSrO3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Sr	1	7440-24-6
Nb	1	7440-03-1

CC 76-9 (Electric Phenomena)
IT 12201-67-1, Niobium strontium oxide (NbSrO3.5) **39293-87-3**, Niobium strontium oxide (NbSrO3) 136699-97-3, Niobium strontium oxide (NbSrO3.45) 381732-89-4, Lanthanum niobium strontium oxide (La0.2NbSr0.8O3.5)
(dielec. properties and charge transport in (Sr,La)NbO3.5-x system)
RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L96 ANSWER 5 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 136:332996 HCA Full-text
TI The microstructure of ordered Ba(Mg1/3Ta2/3)O3
AU Lei, C. H.; Van Tendeloo, G.; Amelinckx, S.
CS EMAT, Rijksuniversitair Centrum Antwerpen, Antwerp, B-2020, Belg.
SO Philosophical Magazine A: Physics of Condensed Matter: Structure, Defects and Mechanical Properties (**2002**), 82(2), 349-367
CODEN: PMAADG; ISSN: 0141-8610
PB Taylor & Francis Ltd.
DT Journal
LA English
AB The microstructure of the ordered **perovskite** Ba(Mg1/3Ta2/3)O3 was studied by direct imaging, using high-resoln. electron microscopy, and by selected-area electron diffraction. Single crystals are fragmented at different structural levels. The cubic BaO3 framework contains numerous twins and stacking faults. Single domains of this framework are further fragmented by the potential occurrence of four orientation variants and of three translation variants in each orientation variant of the superstructure. The observations are consistent with the assumption that, at a temp. close to the **m.p.**, an order-disorder transition of the B-cation sublattice occurs within the already-formed BaO3 framework.
IT **12231-81-1**, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3)
(microstructure of ordered Ba(Mg1/3Ta2/3)O3)
RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

CC 75-3 (Crystallography and Liquid Crystals)
IT **12231-81-1**, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3)
(microstructure of ordered Ba(Mg1/3Ta2/3)O3)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L96 ANSWER 6 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 134:196848 HCA Full-text
TI Influence of strontium on the cubic to ordered hexagonal phase

transformation in barium magnesium niobate

AU Thirumal, M.; Ganguli, A. K.

CS Department of Chemistry, Indian Institute of Technology, New Delhi, 110 016, India

SO Bulletin of Materials Science (**2000**), 23(6), 495-498
CODEN: BUMSDW; ISSN: 0250-4707

PB Indian Academy of Sciences

DT Journal

LA English

AB Oxides of the type Ba3-xSrxMgNb2O9 were synthesized by the solid state route. The x = 0 compn. (Ba3MgNb2O9) was found to crystallize in a disordered (cubic) **perovskite** structure when **sintered** at 1000°C. For higher Sr doping ($x \geq 0.5$), there was clearly the presence of an ordered hexagonal phase indicated by the growth of superstructure reflections in the powder X-ray diffraction patterns. In all the compns. there was the presence of a minor amt. of Ba5-xSrxNb4O15 phase which increased with Sr substitution up to x = 1 and then it remained nearly const. at about 5%. Samples **sintered** at 1300°C showed the hexagonally ordered phase for the entire range of compn. ($0 \leq x \leq 3$). The degree of ordering being considerably greater than in the 1000°C heated samples as evidenced by several superstructure reflections.

IT **12009-73-3**, Barium magnesium niobate ba3mgnb2o9
12299-93-3, Magnesium niobium strontium oxide MgNb2Sr3O9
(dielecs.; effects of Sr substitution for Mg on cubic-to-ordered hexagonal phase transformation in barium magnesium niobate Ba3MgNb2O9 microwave dielec.)

RN 12009-73-3 HCA

CN Barium magnesium niobium oxide (BaMg0.33Nb0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Nb	0.67	7440-03-1
Mg	0.33	7439-95-4

RN 12299-93-3 HCA

CN Magnesium niobium strontium oxide (MgNb2Sr3O9) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Sr	3	7440-24-6
Nb	2	7440-03-1
Mg	1	7439-95-4

CC 57-2 (Ceramics)
Section cross-reference(s): 75, 76

IT Electric **insulators**
(barium magnesium niobate; effects of Sr substitution for Mg on cubic-to-ordered hexagonal phase transformation in barium magnesium niobate Ba3MgNb2O9 microwave dielec.)

IT **12009-73-3**, Barium magnesium niobate ba3mgnb2o9
12299-93-3, Magnesium niobium strontium oxide MgNb2Sr3O9
327594-78-5, Barium magnesium niobium strontium oxide (Ba0.5MgNb2Sr2.5O9) 327594-79-6, Barium magnesium niobium strontium oxide (BaMgNb2Sr2O9) 327594-80-9, Barium magnesium niobium strontium oxide (Ba2MgNb2SrO9) 327594-81-0, Barium magnesium niobium strontium oxide (Ba2.5MgNb2Sr0.5O9)
(dielecs.; effects of Sr substitution for Mg on cubic-to-ordered hexagonal phase transformation in barium magnesium niobate Ba3MgNb2O9 microwave dielec.)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L96 ANSWER 7 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 127:325102 HCA Full-text
TI Design of dielectric substrates for high-Tc superconductor films
AU Bhalla, A.; Guo, R.
CS Materials Research Laboratory, The Pennsylvania State University
University Park, PA, 16802, USA
SO Acta Physica Polonica, A (1997), 92(1), 7-21
CODEN: ATPLB6; ISSN: 0587-4246
PB Polish Academy of Sciences, Institute of Physics
DT Journal
LA English
AB Investigations on the design and engineering of candidate substrate materials suitable for high-Tc superconductor thin-film deposition and applications have yielded several exciting new hosts such as $Ba(Mg_{1/3}Ta_{2/3})O_3$, $Sr(Al_{1/2}Ta_{1/2})O_3$, and $Sr(Al_{1/2}Nb_{1/2})O_3$. Dielec. properties, **thermal expansion coeffs.**, melting temps., and growth feasibility were tested for a wide range of substrate materials and solid solns. These complex **perovskite** crystals and their assocd. solid solns. provide new options for ultralow loss, low permittivity substrates with close structural and thermal matching to the $YBa_2Cu_3O_{7-\delta}$. Several new materials have been tested for high-Tc superconductor film depositions. A laser-heated pedestal growth system has been used as an essential tool in producing single crystals for testing. Development on the predictive capability of the dielec. const. of ionic solids, by improving Shannon's approach, is also discussed in this paper.
IT **12231-81-1**, Barium Magnesium Tantalum oxide ($Ba_3MgTa_2O_9$)
(substrate; dielec. substrates for high-Tc superconductor films)
RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide ($BaMg_{0.33}Ta_{0.67}O_3$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

CC 76-4 (Electric Phenomena)
IT **12231-81-1**, Barium Magnesium Tantalum oxide ($Ba_3MgTa_2O_9$)
12251-80-8, Aluminum Niobium Strontium oxide ($AlNbSr_2O_6$)
12251-88-6, Aluminum Strontium Tantalum oxide ($AlSr_2TaO_6$)
(substrate; dielec. substrates for high-Tc superconductor films)
RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L96 ANSWER 8 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 125:313969 HCA Full-text
TI Prediction of the dielectric properties of nonferroelectric complex **perovskites** and of the ternary system Ba/SrO-Ln_2O_3-xTiO_2 for microwave applications
AU Colla, E. L.; David, N.; Rau, C.; Setter, N.
CS Lab. Ceramique, EPFL, Lausanne, CH-1015, Switz.
SO Ferroelectrics (1996), 184(1-4, Eighth European Meeting of Ferroelectricity, 1995, Pt. 2), 151-160
CODEN: FEROA8; ISSN: 0015-0193
PB Gordon & Breach
DT Journal
LA English
AB In the 1st part of this work an attempt is presented to predict the dielec. properties of solid solns. of nonferroelec. complex **perovskites** by structural predictions based on the tolerance factor and a microscopic model, an estn. of the optical permittivity based on the Gladstone-Dale relation, and an estn. of total polarizability accordingly to the mol./ion additivity rule. The objective is to produce materials with increased relative permittivity $\varepsilon 0$ and very low **thermal coeff**. of the resonant frequency τf. The new compns. with predicted dielec. properties are then fabricated in ceramic form and structurally, elec., and optically characterized to verify the model. Results show good agreement with the structural features and optical permittivities. However, the calcd. total polarizability for relative permittivities >20 seems to be inaccurate and need further development. In the 2nd part, the study of the dielec. and structural properties of ceramics based on the ternary system Ba/SrO-Ln_2O_3-xTiO_2 (Ln = Nd, Sm, Gd) with $4 \le x \le 5$ is presented. A preliminary attempt to relate the dielec. behavior with the structural properties and the chem. and phase compn. was made in the case of Ln = Nd, Sm. Special attention was paid

to the **thermal coeff.** of the permittivity τε, because it shows pos. values for Ba-Sm-based compds. and neg. values for the Ba-Nd-compn. and for Ba/Sr-Sm-solid solns.

IT **163186-98-9**, Magnesium strontium tantalum oxide (Mg0.33SrTa0.67O3)
(prediction and exptl. verification of the dielec. properties of nonferroelec.)

RN 163186-98-9 HCA

CN Magnesium strontium tantalum oxide (Mg0.33SrTa0.67O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ta	0.67	7440-25-7
Sr	1	7440-24-6
Mg	0.33	7439-95-4

CC 76-9 (Electric Phenomena)
Section cross-reference(s): 75

ST dielectricity polarizability nonferroelec **perovskite** solid soln; barium strontium rare earth titanate dielectricity

IT **Perovskite**-type crystals
(prediction and exptl. verification of the dielec. properties of nonferroelec.)

IT Dielectric constant and dispersion
Polarizability
(prediction and exptl. verification of the dielec. properties of nonferroelec. complex **perovskites**)

IT Crystal structure-property relationship
(dielec., of **perovskites** in the ternary system Ba/SrO-Ln2O3-xTiO2)

IT 109657-05-8 114780-79-9, Niobium strontium zinc oxide (Nb0.67SrZn0.33O3) 123744-10-5, Barium niobium strontium zinc oxide (Ba0.5Nb0.67Sr0.5Zn0.33O3) 154085-41-3, Barium niobium zinc oxide (BaNb0.67Zn0.33O3) **163186-98-9**, Magnesium strontium tantalum oxide (Mg0.33SrTa0.67O3)
(prediction and exptl. verification of the dielec. properties of nonferroelec.)

L96 ANSWER 9 OF 16 HCA COPYRIGHT 2007 ACS on STN

AN 124:357474 HCA Full-text

TI Oxide **perovskite** crystals for HTSC film substrates. Microwave applications

AU Bhalla, A.S.; Guo, Ruyan

CS Materials Research Laboratory, Pennsylvania State University, University Park, PA, 16802, USA

SO NASA Conference Publication (**1995**), 3290(Proceedings of the Fourth International Conference and Exhibition: World Congress on Superconductivity, 1994, Vol. 1), 188-197
CODEN: NACPDX; ISSN: 0191-7811

PB National Aeronautics and Space Administration

DT Journal

LA English

AB The research focused upon generating new substrate materials for the deposition of superconducting yttrium barium cuprate (YBCO) has yielded several new hosts in complex **perovskites**, modified **perovskites**, and other structure families. New substrate candidates such as Sr(Al1/2Ta1/2)O3 and Sr(Al1/2Nb1/2)O3, Ba(Mg1/3Ta2/3)O3 in the complex oxide **perovskite** structure family and their solid solns. with ternary **perovskite** LaAlO3 and NdGaO3 are reported. Conventional ceramic processing techniques were used to fabricate dense ceramic samples. A laser-heated molten zone growth system was utilized for the test growth of these candidate materials in single-crystal fiber form to det. crystal structure, **m.p.**, thermal properties, and dielec. properties as well as to make pos. identification of twin free systems. Some of those candidate materials present an excellent combination of properties suitable for microwave HTSC substrate applications.

IT **12231-81-1**, Barium magnesium tantalum oxide
(BaMg0.33Ta0.67O3)
(**perovskite** crystals; as substrate for high-Tc
superconductor films for microwave applications)
RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

CC 76-4 (Electric Phenomena)
ST **perovskite** oxide substrate high temp superconductor;
yttrium barium cuprate **perovskite** oxide substrate; niobate
strontium aluminum substrate cuprate superconductor; tantalate
strontium aluminum substrate cuprate superconductor; magnesium
barium tantalate substrate cuprate superconductor
IT Superconductors
(high-temp., oxide **perovskite** crystals for
superconductive YBCO film substrates for microwave applications)
IT 12003-65-5D, Aluminum lanthanum oxide (AlLaO3), solid solns. with
perovskite oxides 12207-22-6D, Gallium neodymium oxide
(GaNdO3), solid solns. with **perovskite** oxides
(as substrate for high-Tc superconductor films for microwave
applications)
IT 109064-29-1, Barium copper yttrium oxide (Ba2Cu3YO7)
(oxide **perovskite** crystals for superconductive YBCO
film substrates for microwave applications)
IT **12231-81-1**, Barium magnesium tantalum oxide
(BaMg0.33Ta0.67O3) 12251-80-8, Aluminum niobium strontium oxide
(AlNbSr2O6) 12251-88-6, Aluminum strontium tantalum oxide
(AlSr2TaO6)
(**perovskite** crystals; as substrate for high-Tc
superconductor films for microwave applications)

L96 ANSWER 10 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 122:201495 HCA Full-text
TI Candidate HTSC film substrates of complex oxide **perovskite**
compositions
AU Guo, Ruyan; Bhalla, A. S.; Roy, Rustum; Cross, L. E.
CS Materials Research Laboratory, Pennsylvania State Univ., Univ. Park,
PA, 16802, USA
SO Materials Research Society Symposium Proceedings (**1994**),
341(Epitaxial Oxide Thin Films and Heterostructures), 215-20
CODEN: MRSPDH; ISSN: 0272-9172
DT Journal
LA English
AB The research focused upon generating new substrate materials for the deposition of superconducting Y Ba cuprate (YBCO) has yielded several new hosts in complex **perovskites**, modified **perovskites**, and other structure families. New substrate candidates such as Sr(Al1/2Ta1/2)O3 and Sr(Al1/2Nb1/2)O3, Ba(Mg1/3Ta2/3)O3 in complex oxide **perovskite** structure family and their solid solns. with ternary **perovskite** LaAlO3 and NdGaO3 are reported. Conventional ceramic processing techniques were used to fabricate dense ceramic samples. A laser heated molten zone growth system was used for the test-growth of these candidate materials in single crystal fiber form to det. crystallog. structure, **m.p.**, thermal, and dielec. properties as well as to make pos. identification of twin free systems. Some of those candidate materials present an excellent combination of properties suitable for microwave HTSC substrate applications.
IT **12231-81-1P**, Barium magnesium tantalum oxide
(BaMg0.33Ta0.67O3)
(prepn. for use as YBCO film deposition substrates of
perovskite-type)

RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 57, 76
ST oxide **perovskite** substrate prepn cuprate deposition
IT Superconductors
(barium copper yttrium oxide; prepn. of ceramic complex oxide **perovskite** compns. for substrates for deposition of films of)
IT Oxides, preparation
(prepn. for use as YBCO film deposition substrates of **perovskite**-type)
IT **12231-81-1P**, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) 12251-80-8P, Aluminum niobium strontium oxide (AlNbSr2O6) 12251-88-6P, Aluminum strontium tantalum oxide (AlSr2TaO6) 161853-58-3P 161853-59-4P 161853-60-7P
(prepn. for use as YBCO film deposition substrates of **perovskite**-type)

L96 ANSWER 11 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 121:22970 HCA Full-text
TI Ba(Mg1/3Ta2/3)O3 single crystal fiber grown by the laser heated pedestal growth technique
AU Guo, Ruyan; Bhalla, A. S.; Cross, L. E.
CS Mater. Res. Lab., Pennsylvania State Univ., University Park, PA, 16802, USA
SO Journal of Applied Physics (1994), 75(9), 4704-8
CODEN: JAPIAU; ISSN: 0021-8979
DT Journal
LA English
AB The prepn. of Ba(Mg1/3Ta2/3)O3 (BMT) ceramics and the 1st successful growth of BMT single crystals by the laser heated pedestal growth technique (LHPG) is reported. The single crystal has a simple cubic **perovskite** structure in comparison to the ordered hexagonal structure normally found in ceramics of the same phase. The dielec. properties of single crystals are examd., the dielec. Q value increases with the increase in B-site ordering, while the dielec. const. κ is relatively independent of ordering. Also BMT is a candidate substrate for high Tc superconductor thin films as it has 1 of the highest Q values known for the oxide **perovskite** family, along with its matching **thermal expansion coeff.** a = 9.0 + 10-6/°C and twin-free cubic **perovskite** structure with a 4.0877 Å. BMT single crystals grown by the LHPG technique are probably the highest melting oxide compds. grown to date.
IT **12231-81-1**, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3)
(crystal growth of fibers of, by laser heated pedestal growth technique)
RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

CC 75-1 (Crystallography and Liquid Crystals)

Section cross-reference(s): 76
IT **12231-81-1**, Barium magnesium tantalum oxide
($BaMg_{0.33}Ta_{0.67}O_3$)
(crystal growth of fibers of, by laser heated pedestal growth
technique)

L96 ANSWER 12 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 120:150821 HCA Full-text
TI Ferroelectric and antiferroelectric properties of solid-solution
ceramics barium calcium niobium (Ba(Ca1/3Nb2/3)O3)-lead zirconium
oxide (PbZrO3)
AU Yokusuka, Masaru
CS Iwaki-Meisei Univ., Iwaki, 970, Japan
SO Japanese Journal of Applied Physics, Part 1: Regular Papers, Short
Notes & Review Papers (**1993**), 32(10), 4578-83
CODEN: JAPNDE; ISSN: 0021-4922
DT Journal
LA English
AB Studies have been conducted regarding the solid soln. of the binary system Ba(Ca1/3Nb2/3)O3-PbZrO3, as part of a series of investigations on the ternary system of the transparent ferroelec. ceramics Ba(Ca1/3Nb2/3)O3-PbZrO3-PbTiO3. First, the crystal structure of the complex compd. Ba(Ca1/3Nb2/3)O3 at room temp. was detd.; it has a cubic disordered **perovskite** structure with the lattice const. a = 4.185 Å. Then, for the system of xBa(Ca1/3Nb2/3)O3(1 - x)PbZrO3, lattice consts., dielec. consts., electromech. coupling factors, spontaneous polarization and **thermal expansion** were measured as a function of temp. for varying x (x = 0-0.1). From these results, successive phase transitions from the paraelec. through the ferroelec. to the antiferroelec. phase were found. Finally, the diffuse phase transition for the compn. x > 0.05 was discussed.
IT **79987-08-9**
(in niobate-zirconate ferroelec.-antiferroelec. ceramics)
RN 79987-08-9 HCA
CN Barium calcium niobium oxide (Ba3CaNb2O9) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Ca	1	7440-70-2
Ba	3	7440-39-3
Nb	2	7440-03-1

CC 76-8 (Electric Phenomena)
IT 12060-01-4, Lead zirconate **79987-08-9**
(in niobate-zirconate ferroelec.-antiferroelec. ceramics)

L96 ANSWER 13 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 120:142113 HCA Full-text
TI Manufacture of **perovskite**-type oxides
IN Katayama, Shingo; Tanigawa, Kenichi; Sugyama, Masaaki; Inuzuka,
Takayuki
PA Nippon Steel Corp, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 05286703	A	19931102 <--	JP 1992-114214	19920408
PRAI JP 1992-114214		19920408 <--		

AB The oxides, having general formula A(B1 1/3B22/3)O3, are prepd. by hydrolysis of A alkoxide and double alkoxides having B1 and B2 mol. ratio 1:2. A is selected from Ba, Sr, Ca, B1 is selected from Mg, Co, Ni, Zn, Ca, and B2 is selected from Ta, Nb, and Sb. High-d. dielec. ceramics for microwave use are obtained at low **sintering** temp.

IT **12009-73-3P 12201-40-0P 12231-81-1P**
(manuf. of **perovskite**-type, by alkoxide hydrolysis, for dielec. ceramics)

RN 12009-73-3 HCA

CN Barium magnesium niobium oxide (BaMg0.33Nb0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Nb	0.67	7440-03-1
Mg	0.33	7439-95-4

RN 12201-40-0 HCA

CN Magnesium strontium tantalum oxide (MgSr3Ta2O9) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Ta	2	7440-25-7
Sr	3	7440-24-6
Mg	1	7439-95-4

RN 12231-81-1 HCA

CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

IC ICM C01B013-34
ICS C01G033-00; C01G035-00

ICA C04B035-00

CC 57-2 (Ceramics)
Section cross-reference(s): 76

ST alkoxide hydrolysis **perovskite** oxide; dielec ceramic **perovskite** oxide

IT Hydrolysis
(of alkoxides, in **perovskite**-type oxide manuf.)

IT Electric **insulators** and Dielectrics
(ceramic, manuf. of **perovskite**-type, by alkoxide hydrolysis)

IT Alcohols, compounds
(salts, hydrolysis of, in **perovskite**-type oxide manuf.)

IT **12009-73-3P 12201-40-0P 12231-81-1P**
12231-88-8P
(manuf. of **perovskite**-type, by alkoxide hydrolysis, for dielec. ceramics)

L96 ANSWER 14 OF 16 HCA COPYRIGHT 2007 ACS on STN

AN 104:154452 HCA Full-text

TI Dielectric ceramic compositions

IN Kito, Ryozo; Arima, Yasutaka; Nishimura, Kosuke
PA Ube Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60210568	A	19851023	JP 1984-65202	19840403 <--
	JP 02060628	B	19901217		
PRAI	JP 1984-65202		19840403 <--		

AB Dielec. ceramic compns. with improved no-load Q, low dielec. loss tangent (tan δ), excellent **thermal coeff.** of resonant frequency, and suitably large sp. dielec. const. are prepd. by adding V2O5 to a **perovskite** ceramic with the formula Ba [(ZnxMg1-x)1/3 = (NbyTa1-y)2/3]O3 (I) where x = 0-0.95, y = 0-0.4. The dielec. ceramics are useful as resonators for receivers of satellite microwave transmissions. Thus, a mixt. of BaCO3 0.3, MgO 0.1, and Ta2O5 0.1 mol was wet mixed, dried, calcined at 1200° in air, ground, calcined at 1250° in air, mixed with an aq. soln. contg. 1 mol.% VOSO4, compacted as a disk, and fired at 1600°. The resulting dielec. (contg. 99 mol.% **perovskite** oxide with the formula I where x = 0 and y = 0, 1 mol.% V2O5) had an unloaded Q 12,500, dielec. const. 25.0 at 10.5 GHz, and τf 3.8 ppm/degree at -20 to -50°.

IT **12009-73-3D**, solid solns. **12231-81-1**
(**perovskite** dielec. ceramics, contg. vanadium oxide, for microwave receiver resonators)
RN 12009-73-3 HCA
CN Barium magnesium niobium oxide (BaMg0.33Nb0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Nb	0.67	7440-03-1
Mg	0.33	7439-95-4

RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

IC ICM C04B035-00
ICS H01B003-12
ICA H01P007-00
CC 57-2 (Ceramics)
Section cross-reference(s): 76
ST dielec ceramic vanadium oxide; **perovskite** dielec vanadium oxide; resonators dielec **perovskite**
IT Oscillators and Resonators
(microwave receiver, from vanadium oxide-contg. **perovskite** dielec. ceramics)
IT 1314-62-1, uses and miscellaneous
(**perovskite** dielec. ceramics contg., for microwave receiver resonators)
IT **12009-73-3D**, solid solns. **12231-81-1**

12231-88-8D, solid solns. 12506-06-8D, solid solns.
(**perovskite** dielec. ceramics, contg. vanadium oxide, for microwave receiver resonators)

L96 ANSWER 15 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 70:82218 HCA Full-text
TI Dielectric materials with dielectric constants stable at high temperatures
IN Glasso, Salvatore F.
PA United Aircraft Corp.
SO Fr., 6 pp.
CODEN: FRXXAK
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 1509999		19680119	FR 1966-85759	19661201 <--
	DE 1671173			DE	
	GB 1156199			GB	
	US 3464785		19690902	US	19651214 <--

PRAI US 19651214 <--
AB Certain **perovskite** oxides have high elec. resistivity over a range of temps. and dielec. consts. almost invariant up to 800°. These **perovskites** have the general formula A(B0.33Ta0.67)O3, where A is Ba or Sr and B is Mg, Ca, Zn, Ni, or Co. Compds. are esp. useful where A is Ba and B is Mg, Ca, Zn, or Ni. The **perovskites** were prepd. by mixing the weighed oxides (e.g. BaO, MgO, Ta2O5) with BaF2 and holding .apprx.100° above the **m.p.** for 8.5 hrs. then slowly cooling to allow the crystals of oxide to grow. Carbonates, nitrates, and other compds. pyrolyzing to the oxides may be used instead of the oxides.
IT **12231-68-4**, Barium calcium tantalum oxide (Ba3CaTa2O9)
12231-81-1, Barium magnesium tantalum oxide (Ba3MgTa2O9)
(elec. insulators)
RN 12231-68-4 HCA
CN Barium calcium tantalum oxide (Ba3CaTa2O9) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Ca	1	7440-70-2
Ba	3	7440-39-3
Ta	2	7440-25-7

RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

IC H01B
CC 71 (Electric Phenomena)
IT Electric insulators

(barium tantalum oxide modified **perovskites**)
IT 12047-83-5, Barium nickel tantalum oxide (Ba3NiTa2O9)
12231-68-4, Barium calcium tantalum oxide (Ba3CaTa2O9)
12231-81-1, Barium magnesium tantalum oxide (Ba3MgTa2O9)
(elec. insulators)

L96 ANSWER 16 OF 16 HCA COPYRIGHT 2007 ACS on STN
AN 63:50209 HCA Full-text
OREF 63:9129c-d
TI Growth of single crystals of Ba(B'0.33Ta0.67)O3 **perovskite** -type compounds
AU Galasso, Francis; Pinto, Jane
CS United Aircraft Corp., East Hartford, CT
SO Nature (London, United Kingdom) (1965), 207(4992), 70-2
CODEN: NATUAS; ISSN: 0028-0836
DT Journal
LA English
AB Ba(B'0.33Ta0.67)O3-type compds. were prepd. by dry mixing BaCO3, Ta2O5, and a divalent metal oxide in stoichiometric ratios with a BaF2 flux. The mixts. were placed in Pt crucibles and heated for various times at .apprx.100° above the **m.p** . of the flux. The samples were then cooled slowly over a temp. range of .apprx.400° followed by mech. extn. of crystals. The crystals were shown to be single ones by means of x-ray precession photographs. Elec. and resistance measurements as a function of temp. were made on several crystals contg. Mg. A dielec. const. of .apprx.500 was obtained. The powder compact of the same compn. has a lower dielec. const. Comparison of x-ray patterns shows the pseudocubic cell to be less distorted in the crystal.
IT **12231-68-4**, Barium calcium tantalate(V), Ba3CaTa2O9
12231-81-1, Barium magnesium tantalate(V), Ba3MgTa2O9
(crystals, growth and elec. properties of)
RN 12231-68-4 HCA
CN Barium calcium tantalum oxide (Ba3CaTa2O9) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Ca	1	7440-70-2
Ba	3	7440-39-3
Ta	2	7440-25-7

RN 12231-81-1 HCA
CN Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ba	1	7440-39-3
Ta	0.67	7440-25-7
Mg	0.33	7439-95-4

CC 8 (Crystallization and Crystal Structure)
IT Crystals
(growth of, of tantalates (**perovskite-type**))
IT 12047-83-5, Nickel barium tantalate(V), Ba3NiTa2O9
12231-68-4, Barium calcium tantalate(V), Ba3CaTa2O9
12231-81-1, Barium magnesium tantalate(V), Ba3MgTa2O9
12231-88-8, Barium zinc tantalate(V), Ba3ZnTa2O9
(crystals, growth and elec. properties of)

(FORMULA 2)

=> D L79 1-4 BIB ABS HITSTR HITIND

L79 ANSWER 1 OF 4 HCA COPYRIGHT 2007 ACS on STN
AN 137:102183 HCA Full-text
TI Dielectric properties and charge transport in the (Sr,La)NbO3.5-x system
AU Bobnar, V.; Lunkenheimer, P.; Hemberger, J.; Loidl, A.; Lichtenberg, F.; Mannhart, J.
CS Institut fur Physik, Elektronische Korrelationen und Magnetismus, Experimentalphysik V, Universitat Augsburg, Augsburg, D-86135, Germany
SO Physical Review B: Condensed Matter and Materials Physics (**2002**), 65(15), 155115/1-155115/8
CODEN: PRBMDO; ISSN: 0163-1829
PB American Physical Society
DT Journal
LA English
AB The dielec. response of layered **perovskite**-related **insulating** SrNbO3.5 and conducting SrNbO3.41, SrNbO3.45, and La0.2Sr0.8NbO3.5 single crystals is investigated. The measurements are performed along the c axis, i.e., perpendicular to the layers, in the frequency range from 1 MHz to 1.8 GHz. The intrinsic dielec. properties could be monitored only at such relatively high measuring frequencies, since strong contact contributions at the sample-electrode interface dominate at low frequencies. In addn. to the known phase transitions in the SrNbO3.5 compd., a phase transition at T≈300 K in SrNbO3.41 and SrNbO3.45 is reported here. The frequency-dependent ac cond. in all three conducting compds. follows the universal dielec. response behavior. Together with results on the dc cond., this finding indicates that hopping of localized charge carriers, most likely of polaronic character, is the dominating charge-transport process. For all SrNbO3.5-x compds., relatively high values of the dielec. const. are found.
IT **381732-89-4**, Lanthanum niobium strontium oxide (La0.2NbSr0.8O3.5)
(dielec. properties and charge transport in (Sr,La)NbO3.5-x system)
RN 381732-89-4 HCA
CN Lanthanum niobium strontium oxide (La0.2NbSr0.8O3.5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3.5	17778-80-2
Sr	0.8	7440-24-6
Nb	1	7440-03-1
La	0.2	7439-91-0

CC 76-9 (Electric Phenomena)
IT 12201-67-1, Niobium strontium oxide (NbSrO3.5) 39293-87-3, Niobium strontium oxide (NbSrO3) 136699-97-3, Niobium strontium oxide (NbSrO3.45) **381732-89-4**, Lanthanum niobium strontium oxide (La0.2NbSr0.8O3.5)
(dielec. properties and charge transport in (Sr,La)NbO3.5-x system)
RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L79 ANSWER 2 OF 4 HCA COPYRIGHT 2007 ACS on STN
AN 135:311348 HCA Full-text
TI Synthesis and physical properties of niobium-based oxide, Sr2-xLaxNbO4 (0≤x<0.2)
AU Isawa, K.; Nagano, M.
CS R&D Center, Tohoku Electric Power Co., Inc., Sendai, 981-0952, Japan
SO Physica C: Superconductivity and Its Applications (Amsterdam, Netherlands) (**2001**), 357-360(Pt. 1), 359-362

CODEN: PHYCE6; ISSN: 0921-4534
PB Elsevier Science B.V.
DT Journal
LA English
AB Structural and phys. properties of Sr2-xLaxNbO4-δ (0≤x<0.2) with ordered-**perovskite** structure were investigated. Powder X-ray diffraction anal. showed that the samples with 0≤x≤0.1 were of nearly single phase. For all the samples, elec. resistivity (ρ) exhibited semiconducting behavior at temps. below 310 K. On the basis of the Arrhenius plots in the temp. range between 150 and 310 K, the activation energies (Ea) were estd. at Ea.apprx.0.17 eV. The sign of thermoelec. power coeff. (S) was confirmed to be neg. for all the samples below 310 K, indicating that the dominant charge carriers were most likely electrons.
IT **367270-23-3DP**, Lanthanum niobium strontium oxide (La0.05NbSr1.95O4), oxygen-deficient **367270-24-4DP**, Lanthanum niobium strontium oxide (La0.1NbSr1.9O4), oxygen-deficient **367270-25-5DP**, Lanthanum niobium strontium oxide (La0.15NbSr1.85O4), oxygen-deficient
(synthesis and phys. properties of niobium-based oxide Sr2-xLaxNbO4 (0≤x<0.2))
RN 367270-23-3 HCA
CN Lanthanum niobium strontium oxide (La0.05NbSr1.95O4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Sr	1.95	7440-24-6
Nb	1	7440-03-1
La	0.05	7439-91-0

RN 367270-24-4 HCA
CN Lanthanum niobium strontium oxide (La0.1NbSr1.9O4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Sr	1.9	7440-24-6
Nb	1	7440-03-1
La	0.1	7439-91-0

RN 367270-25-5 HCA
CN Lanthanum niobium strontium oxide (La0.15NbSr1.85O4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Sr	1.85	7440-24-6
Nb	1	7440-03-1
La	0.15	7439-91-0

CC 76-1 (Electric Phenomena)
Section cross-reference(s): 75
IT Crystal structure-property relationship
Electric resistance
Sintering
Thermoelectricity
(synthesis and phys. properties of niobium-based oxide Sr2-xLaxNbO4 (0≤x<0.2))
IT 39293-88-4DP, Niobium strontium oxide NbSr2O4, oxygen-deficient **367270-23-3DP**, Lanthanum niobium strontium oxide

($La_{0.05}NbSr_{1.95}O_4$), oxygen-deficient **367270-24-4DP**,
Lanthanum niobium strontium oxide ($La_{0.1}NbSr_{1.9}O_4$), oxygen-deficient
367270-25-5DP, Lanthanum niobium strontium oxide
($La_{0.15}NbSr_{1.85}O_4$), oxygen-deficient
(synthesis and phys. properties of niobium-based oxide
$Sr_{2-x}La_xNbO_4$ ($0 \le x < 0.2$))
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L79 ANSWER 3 OF 4 HCA COPYRIGHT 2007 ACS on STN
AN 132:69936 HCA Full-text
TI Phase relations in the $CaTa_2O_6$-$LaTa_3O_9$ system
AU Pivovarova, A. P.; Strakhov, V. I.; Smirnov, Yu. N.
CS St. Petersburg Technological Institute (Technical University), St. Petersburg, 198013, Russia
SO Inorganic Materials (Translation of Neorganicheskie Materialy) (1999), 35(12), 1291-1293
CODEN: INOMAF; ISSN: 0020-1685
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB Phase relations in the $CaTa_2O_6$-$LaTa_3O_9$ system were studied between 1200 °C and liquidus temps. The character of the $CaTa_2O_6$ polymorphism was refined. Two high-temp. modifications of $CaTa_2O_6$ were identified: tetragonal ($\alpha 1$) phase (a = 3.882 Å, c = 7.828 Å), stable from 1450 to 1650 °C, and cubic ($\alpha 2$) phase (a = 7.758 Å), stable from 1650 °C to the **m.p.** These **perovskite** phases were found to dissolve up to 20 mol % $LaTa_3O_9$. An orthorhombic **perovskite** phase $Ca_{(1-x)/2}La_{x/3}TaO_3$ (x = 0.33-0.47 at 1600°C), stable over the whole temp. range studied, was identified. $LaTa_3O_9$ was shown to dissolve up to 40 mol % $CaTa_2O_6$.
IT **253344-05-7**, Calcium lanthanum tantalum oxide ($Ca_{0.28}La_{0.14}TaO_3$)
(phase relations in $CaTa_2O_6$-$LaTa_3O_9$ system)
RN 253344-05-7 HCA
CN Calcium lanthanum tantalum oxide ($Ca_{0.28}La_{0.14}TaO_3$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Ca	0.28	7440-70-2
Ta	1	7440-25-7
La	0.14	7439-91-0

CC 68-1 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 73
IT **253344-05-7**, Calcium lanthanum tantalum oxide ($Ca_{0.28}La_{0.14}TaO_3$)
(phase relations in $CaTa_2O_6$-$LaTa_3O_9$ system)
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L79 ANSWER 4 OF 4 HCA COPYRIGHT 2007 ACS on STN
AN 110:241203 HCA Full-text
TI Superconducting material and its production
IN Ogushi, Tetsuya; Hakuraku, Yoshinori; Ogata, Hisanao
PA Hitachi, Ltd., Japan
SO Eur. Pat. Appl., 38 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI EP 287325 A2 19881019 EP 1988-303270
198804
12
<--
EP 287325 A3 19890510
EP 287325 B1 19940727
R: AT, CH, DE, FR, GB, IT, LI, NL
JP 01028232 A 19890130 JP 1987-206360
198708
21
<--
JP 2880164 B2 19990405
JP 01076902 A 19890323 JP 1987-206359
198708
21
<--
JP 2880163 B2 19990405
JP 01076916 A 19890323 JP 1988-16975
198801
29
<--
US 4892862 A 19900109 US 1988-181097
198804
13
<--
US 5183799 A 19930202 US 1991-727310
199107
10
<--
PRAI JP 1987-88847 A 19870413 <--
JP 1987-118844 A 19870518 <--
JP 1987-118846 A 19870518 <--
JP 1987-206359 A 19870821 <--
JP 1987-206360 A 19870821 <--
US 1988-181097 A3 19880413 <--
US 1989-423200 B1 19891018 <--

AB Oxide materials of (LxA1-x)iMOy, (LxA1-x)iM1-zCuzOy and (LxA1-x)iMOj-δGk, wherein L is Sc, Y, lanthanides, etc.; A is Ba, Sr, Ca, etc.; M is V, Nb, Ta, Ti, Zr or Hf; $0 < x < 1$; $0 < z < 1$; i = 1, 3/2 or 2; $0 < y \leq 4$; G is F, Cl or N; δ is O defect, and having a **perovskite**-like crystal structure, show supercond. at a temp. higher than 78 K. Thus, powd. La2O3, SrCO3, and Nb oxide (NbO, NbO2, Nb2O5), or pure Nb were weighed in prestoichiometric amts. and mixed to react at .apprx.900- 1500° for several hours in an oxidizing atm. The resulting mixt. was pulverized, press molded into a suitable shape, and **sintered** at a temp. slightly higher than the above-mentioned reaction temp. to provide an oxide superconducting material having a desired shape. Other methods for producing the superconductors include thin film deposition, sputtering, and annealing. La-Sr-Nb-O thin films showing supercond. near room temp. can easily be produced stably.

IT **119536-46-8P**, Lanthanum niobium strontium oxide (LaNbSrO0-4)
119538-39-5P, Lanthanum niobium strontium oxide (LaNbSrO4)
(superconductor, **perovskite**-structure, prodn. of)

RN 119536-46-8 HCA
CN Lanthanum niobium strontium oxide (LaNbSrO0-4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	0 - 4	17778-80-2
Sr	1	7440-24-6
Nb	1	7440-03-1
La	1	7439-91-0

RN 119538-39-5 HCA
CN Lanthanum niobium strontium oxide (LaNbSrO4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Sr	1	7440-24-6
Nb	1	7440-03-1
La	1	7439-91-0

IC ICM H01L029-12
ICS H01L039-24
CC 76-4 (Electric Phenomena)
ST superconductor oxide **perovskite**; film oxide superconductor
IT Superconductors
(oxide **pprodskites** n. of)
IT **Perovskite**-type crystals
(oxide superconductors, prodn. of)
IT 119536-45-7P **119536-46-8P**, Lanthanum niobium strontium oxide (LaNbSrO0-4) 119537-19-8P, Lanthanum strontium zirconium oxide (La0.5Sr0.5ZrO3) 119537-20-1P, Barium yttrium zirconium oxide (Ba0.5Y0.5ZrO3) 119537-21-2P 119537-22-3P, Barium niobium yttrium fluoride oxide (Ba0.5NbY0.5FO2) 119537-55-2P, Barium tantalum yttrium oxide 119537-59-6P, Lanthanum strontium tantalum oxide **119538-39-5P**, Lanthanum niobium strontium oxide (LaNbSrO4) 120114-04-7P, Barium niobium yttrium oxide (Ba0.5NbY0.5O0-3) 120114-05-8P, Barium niobium scandium yttrium oxide (Ba0.6NbSc0.2Y0.2O7) 120114-06-9P, Copper lanthanum strontium oxide (CuLaSrO3) 120148-22-3P 120898-27-3P, Barium neodymium yttrium chloride oxide (Ba0.5NbY0.5ClO2) 120898-28-4P, Barium lithium niobium oxide (Ba0.5Li0.5NbO3)
(superconductor, **perovskite**-structure, prodn. of)

=> D L61 1-18 BIB ABS HITSTR HITIND

L61 ANSWER 1 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 140:243739 HCA Full-text
TI Growth and structural properties of substrate oxide crystals
AU Berkowski, Marek
CS Institute of Physics, Polish Academy of Sciences, Warsaw, 02-668, Pol.
SO Crystal Growth in Thin Solid Films: Control of Epitaxy (**2002**
), 105-116. Editor(s): Guilloux-Viry, Maryline; Perrin, Andre.
Publisher: Research Signpost, Trivandrum, India.
CODEN: 69ESBA; ISBN: 81-7736-095-7
DT Conference; General Review
LA English
AB A review. The suitability of various materials with the **perovskite** and K2NiF4 structure as substrates for epitaxy was studied. In particular, the anal. concs. on solid solns. of rare earth Ga **perovskites**, cubic **perovskites** and tetragonal materials with K2NiF4 structure. The Czochralski and floating zone methods were used to grow single crystals of Ga **perovskites** solid solns. with rare earth elements La, Pr, Nd, Sm, and with Sr. The unit cell parameters including atoms positions, **thermal expansion coeffs.**, segregation **coeffs.** and phase transition temp. scale with the unit cell vol. in all investigated crystals. All these parameters may be represented as a function of av. ionic radius of rare elements however this value is not well detd. in these compds. because of ill detd. coordination no. Single crystals of **perovskite** solid solns. SrAl0.5Ta0.5O3 (SAT) with LaAlO3 (LA) grown by the Czochralski method crystallize in the cubic structure with the lattice const. in the range from 3.876 to 3.85 A. They have neither structural phase transition nor twins. The **m.p.** of these materials is close to 1850° what indicates high thermal and sufficient chem. stability at the epitaxy temp. Also different materials with the tetragonal K2NiF4 structure and their solid solns. based on SrLaAlO4 (SLA) are considered as substrate materials for epitaxy with a lattice parameter ranging from 3.754-3.84 Å.
IT **12251-88-6**, Aluminum strontium tantalum oxide al0.5srta0.5o3
(growth and structural properties of substrate oxides of **perovskite** and K2NiF4 types for epitaxy)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 75-0 (Crystallography and Liquid Crystals)
ST review oxide **perovskite** tetragonal growth structure
substrate epitaxy
IT Crystal growth
(floating-zone; growth and structural properties of substrate
oxides of **perovskite** and K2NiF4 types for epitaxy)
IT Rare earth compounds
(gallates; growth and structural properties of substrate oxides
of **perovskite** and K2NiF4 types for epitaxy)
IT Epitaxy
(growth and structural properties of substrate oxides of
perovskite and K2NiF4 types for)
IT Czochralski crystal growth
Perovskite-type crystals
Structural phase transition
Thermal expansion
(growth and structural properties of substrate oxides of
perovskite and K2NiF4 types for epitaxy)
IT Oxides (inorganic), properties
(growth and structural properties of substrate oxides of
perovskite and K2NiF4 types for epitaxy)
IT Crystal structure types
(tetragonal, K2NiF4-type; growth and structural properties of
substrate oxides of **perovskite** and K2NiF4 types for
epitaxy)
IT 12003-65-5, Aluminum lanthanum oxide allao3 12251-73-9, Aluminum
lanthanum strontium oxide allasro4 **12251-88-6**, Aluminum
strontium tantalum oxide al0.5srta0.5o3
(growth and structural properties of substrate oxides of
perovskite and K2NiF4 types for epitaxy)
IT 7440-55-3D, Gallium, compds.
(rare earth oxides; growth and structural properties of substrate
oxides of **perovskite** and K2NiF4 types for epitaxy)
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L61 ANSWER 2 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 140:45946 HCA Full-text
TI Heat-**insulating** layer made of complex **perovskite**
with a special compns. Ba(Mg1/3Ta2/3)O3
IN Vassen, Robert; Schwartz-Lueckge, Sigrid; Jungen, Wolfgang; Stoever,
Detlev
PA Forschungszentrum Juelich G.m.b.H., Germany
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003106372	A1	20031224	WO 2003-DE1924	200306

10
<--
W: JP, US
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR
DE 10226295 A1 20040108 DE 2002-10226295
200206
13
EP 1513781 A1 20050316 EP 2003-759844
200306
10
<--
EP 1513781 B1 20060517
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK
JP 2005537203 T 20051208 JP 2004-513208
200306
10
<--
AT 326439 T 20060615 AT 2003-759844
200306
10
<--
US 2005260435 A1 20051124 US 2005-518155
200507
20
<--
PRAI DE 2002-10226295 A 20020613 <--
WO 2003-DE1924 W 20030610 <--

AB The invention relates to a heat-**insulating** layer made of a material which has a complex **perovskite** structure, having a **m.p.** ≥2500° and a **thermal expansion coeff.**
≥8+10-6 K-1 in addn. to a **sintering** temp. of ≥1400°. The heat-**insulating** material is characterized by a first general formula A1+r (B' 1/3+xB"2/3+y)O3+z, wherein: A = at least one element from the group (Ba, Sr, Ca, Be); B' = at least one element from the group (Mg, Ca, Sr, Ba, Be); B" = at least one element from the group (Ta, Nb), and -0.1 < r, x, y, z < 0,1; or by a second general formula A1+r (B' 1/2+xB" 1/2+y)O3+z, wherein: A = at least one element from the group (Ba, Sr, Ca, Be); B' = at least one element from the group (Al, La, Nd, Gd, Er, Lu, Dy, Tb); B" = at least one element from the group (Ta, Nb), and -0,1 < r, x, y, z < 0.1. One particular advantage of the invention is that the heat-**insulating** material BMT is distinguished by the special compns. Ba(Mg1/3Ta2/3)O3,. The resulting heat-protective layers can be used with or without intermediate layers on the surface of temp.-exposed components.

IT **12250-59-8**, Aluminum calcium niobium oxide (AlCa2NbO6)
12251-88-6, Aluminum strontium tantalum oxide (Al0.5SrTa0.5O3)
(**perovskite** structured; heat-**insulating** layer made of complex **perovskite** with a special compns. Ba(Mg1/3Ta2/3)O3)

RN 12250-59-8 HCA
CN Aluminum calcium niobium oxide (AlCa2NbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Nb	1	7440-03-1
Al	1	7429-90-5

RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2

Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

IC ICM C04B035-495
ICS C23C004-10; F16L059-00; F01D005-28
CC 57-2 (Ceramics)
ST **perovskite** thermal **insulator** barium magnesium tantalum oxide
IT Ceramics
Melting point
Perovskite-type crystals
Thermal expansion
Thermal **insulators**
(**heat-insulating** layer made of complex **perovskite** with a special compns. Ba(Mg1/3Ta2/3)O3)
IT 12231-81-1, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3)
12250-59-8, Aluminum calcium niobium oxide (AlCa2NbO6)
12251-88-6, Aluminum strontium tantalum oxide
(Al0.5SrTa0.5O3) 243464-08-6, Strontium tantalum oxide
(Sr1.33Ta0.67O3)
(**perovskite** structured; heat-**insulating** layer made of complex **perovskite** with a special compns. Ba(Mg1/3Ta2/3)O3)
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L61 ANSWER 3 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 139:330501 HCA Full-text
TI Growth and structure of SrAl0.5Ta0.5O3:LaAlO3 solid solutions single crystals
AU Berkowski, M.; Fink-Finowicki, J.; Diduszko, R.; Byszewski, P.; Aleksiyko, R.; Kikalejshvili-Domukhovska, R.
CS Institute of Physics, Polish Academy of Sciences, Warsaw, 02-668, Pol.
SO Journal of Crystal Growth (**2003**), 257(1-2), 146-152
CODEN: JCRGAE; ISSN: 0022-0248
PB Elsevier Science B.V.
DT Journal
LA English
AB Expts. on growth of (SrAl0.5Ta0.5O3)1-x(LaAlO3)x **perovskite** crystals by the Czochralski and floating zone methods in the whole compn. range are reported. The structure of these crystals was studied by precise x-ray measurements at room and elevated temps. The expts. allowed one to propose a schematic phase diagram of this soln.; solid solns. exist at a concn. of $0 \leq x \leq 0.5$ when crystals assume a cubic structure. The Czochralski method may be used to grow single crystals with a compn. x = 0.23-0.41. Neither any structural phase transition nor tendency to form twins was detected in these solid soln. crystals. The lattice parameters, **thermal expansion coeff.** and high **m.p.** close to 1850° indicate their high thermal and chem. stability and prove that these crystals may be used as substrates for high-temp. superconductor, manganites or GaN epitaxial layers.
IT **12251-88-6**, Aluminum strontium tantalum oxide
(Al0.5SrTa0.5O3)
(crystal growth and structure of)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 75-1 (Crystallography and Liquid Crystals)

Section cross-reference(s): 76, 77
IT **12251-88-6**, Aluminum strontium tantalum oxide
($Al_{0.5}SrTa_{0.5}O_3$) 356657-15-3 613687-27-7 613687-28-8
613687-29-9 613687-30-2 613687-31-3 613687-32-4 613687-33-5
613687-34-6 613687-35-7 613687-36-8
(crystal growth and structure of)
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L61 ANSWER 4 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 138:307715 HCA Full-text
TI Microwave dielectric properties of $CaTiO_3$-$CaAl_{1/2}Nb_{1/2}O_3$ ceramics doped with Li_3NbO_4
AU Kucheiko, Sergey; Yeo, Dong-Hun; Choi, Ji-Won; Yoon, Seok-Jin; Kim, Hyun-Jai
CS Korea First Microwave Company, Ltd., Ichon, 467-860, S. Korea
SO Journal of the American Ceramic Society (**2002**), 85(5), 1327-1329
CODEN: JACTAW; ISSN: 0002-7820
PB American Ceramic Society
DT Journal
LA English
AB The microwave dielec. properties of $CaTi_{1-x}(Al_{1/2}Nb_{1/2})_xO_3$ solid solns. ($0.3 \le x \le 0.7$) have been investigated. The **sintered** samples had **perovskite** structures similar to $CaTiO_3$. The substitution of Ti^{4+} by Al^{3+}/Nb^{5+} improved the quality factor Q of the **sintered** specimens. A small addn. of Li_3NbO_4 (about 1%) was found to be very effective for lowering **sintering** temp. of ceramics from 1450-1500° to 1300°. The compn. with $x = 0.5$ **sintered** at 1300° for 5 h revealed excellent dielec. properties, namely, a dielec. const. of 48, a Q + f value of 32100 GHz, and a temp. coeff. of the resonant frequency of -2 ppm/K. Li_3NbO_4 as a **sintering** additive had no harmful influence on τf of ceramics.
IT **12250-59-8**, Aluminum calcium niobium oxide ($AlCa_2NbO_6$)
(dielec. ceramics; effects of Li_3NbO_4 **sintering** aids on **sintering** temp. and microwave dielec. properties of $CaTi_{1-x}(Al_{1/2}Nb_{1/2})_xO_3$ ceramics)
RN 12250-59-8 HCA
CN Aluminum calcium niobium oxide ($AlCa_2NbO_6$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Nb	1	7440-03-1
Al	1	7429-90-5

CC 57-2 (Ceramics)
Section cross-reference(s): 76
ST lithium niobate **sintering** aid calcium aluminum titanate niobate dielec
IT Electric **insulators**
(ceramic, aluminum calcium niobate titanate; effects of Li_3NbO_4 **sintering** aids on **sintering** temp. and microwave dielec. properties of $CaTi_{1-x}(Al_{1/2}Nb_{1/2})_xO_3$ ceramics)
IT Dielectric constant
Perovskite-type crystals
(effects of Li_3NbO_4 **sintering** aids on **sintering** temp. and microwave dielec. properties of $CaTi_{1-x}(Al_{1/2}Nb_{1/2})_xO_3$ ceramics)
IT **Sintering** aids
(lithium niobate; effects of Li_3NbO_4 **sintering** aids on **sintering** temp. and microwave dielec. properties of $CaTi_{1-x}(Al_{1/2}Nb_{1/2})_xO_3$ ceramics)
IT **Sintering**
(temp.; effects of Li_3NbO_4 **sintering** aids on

sintering temp. and microwave dielec. properties of
CaTi1-x(Al1/2Nb1/2)xO3 ceramics)
IT 12049-50-2, Calcium titanate (CaTiO3) **12250-59-8**, Aluminum calcium niobium oxide (AlCa2NbO6) 507485-90-7, Aluminum calcium niobium titanium oxide (Al0.15CaNb0.15Ti0.7O3) 507485-91-8, Aluminum calcium niobium titanium oxide (Al0.2CaNb0.2Ti0.6O3) 507485-92-9, Aluminum calcium niobium titanium oxide (Al0.24CaNb0.24Ti0.53O3) 507485-93-0, Aluminum calcium niobium titanium oxide (Al0.25CaNb0.25Ti0.5O3) 507485-94-1, Aluminum calcium niobium titanium oxide (Al0.3CaNb0.3Ti0.4O3) 507485-95-2, Aluminum calcium niobium titanium oxide (Al0.35CaNb0.35Ti0.3O3)
(dielec. ceramics; effects of Li3NbO4 **sintering** aids on **sintering** temp. and microwave dielec. properties of CaTi1-x(Al1/2Nb1/2)xO3 ceramics)
IT 12031-87-7, Lithium niobate (Li3NbO4)
(**sintering** aids; effects of Li3NbO4 **sintering** aids on **sintering** temp. and microwave dielec. properties of CaTi1-x(Al1/2Nb1/2)xO3 ceramics)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L61 ANSWER 5 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 137:220758 HCA Full-text
TI Composition of **perovskite** type dielectric ceramics with high Q value and thermal stability
IN Fujinaga, Masataka
PA Ube Electronics Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002255640	A	20020911	JP 2001-50873	20010226 <--
JP 2001302333	A	20011031	JP 2000-126929	20000427 <--
US 2001056031	A1	20011227	US 2001-843373	20010426 <--
US 6599854	B2	20030729		

PRAI JP 2000-126929 A 20000427 <--
JP 2001-50873 A 20010226 <--
AB The ceramic represented by aCaTiO3-(1-a)Ca(Al1/2Nb1/2)O3 ($0.4 \leq a \leq 0.6$) is a **perovskite** type composite oxide contg. additives of ZrO2, MnO, and/or Sb2O3, where the wt. ratio of the composite oxide : the additives is 100 : (>0 and ≤2). The title ceramic is suitable for dielec. resonator used in GHz microwave range.
IT **12250-59-8**, Aluminum calcium niobium oxide (AlCa2NbO6)
(ceramic compn. contg.; compn. of **perovskite** type dielec. ceramics with high Q value and thermal stability)
RN 12250-59-8 HCA
CN Aluminum calcium niobium oxide (AlCa2NbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	6	17778-80-2
Ca	2	7440-70-2
Nb	1	7440-03-1
Al	1	7429-90-5

IC ICM C04B035-46
CC 57-2 (Ceramics)
Section cross-reference(s): 76
ST dielec ceramic compn Q value thermal stability dielec const; calcium titanate aluminum calcium niobium oxide dielec ceramic; zirconia manganese oxide additive dielec ceramic; antimony oxide additive **perovskite** type dielec ceramic
IT Electric **insulators**
(ceramic; compn. of **perovskite** type dielec. ceramics with high Q value and thermal stability)
IT **Perovskite**-type crystals
Thermal stability
(compn. of **perovskite** type dielec. ceramics with high Q value and thermal stability)
IT Resonators
(dielec.; compn. of **perovskite** type dielec. ceramics with high Q value and thermal stability for)
IT Dielectric constant
(of **perovskite** type dielec. ceramics with high Q value and thermal stability)
IT 1309-64-4, Antimony oxide (Sb2O3), uses 1314-23-4, Zirconium oxide (ZrO2), uses 1344-43-0, Manganese oxide, uses
(additive, ceramic contg.; compn. of **perovskite** type dielec. ceramics with high Q value and thermal stability)
IT 12049-50-2, Calcium titanate(CaTiO3) **12250-59-8**, Aluminum calcium niobium oxide (AlCa2NbO6)
(ceramic compn. contg.; compn. of **perovskite** type dielec. ceramics with high Q value and thermal stability)

L61 ANSWER 6 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 137:27037 HCA Full-text
TI Ramp-edge Josephson junction devices from high-temperature superconductors and methods for fabrication
IN Sung, Gun Yong; Choi, Chi Hong; Kang, Kwang Yong
PA S. Korea
SO U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002074544	A1	20020620 <--	US 2000-741955	20001219
	KR 2001067425	A	20010712 <--	KR 2000-78269	20001219

PRAI KR 1999-59975 A 19991221 <--
AB The invention relates generally to reproducibly simplified fabrication of high-temp. superconducting Josephson junction devices necessary in implementing an advanced a single flux quantum circuit for a digital electronic device using superconductors. More particularly, the invention relates to ramp-edge Josephson junction devices and methods for fabricating the same, using Cu-series oxide super-conducting thin films. According to the present invention, the ramp-edge Josephson junction device comprises a substrate, a 1st electrode layer having a ramp-edge and a 1st **insulating** layer formed on the substrate sequentially, a transformation layer formed at the ramp-edge of the

1st electrode layer by illumination of excimer laser and by annealing process, and a 2nd electrode layer and a 2nd electrode layer and a 2nd **insulating** layer formed on the 1st electrode layer including the transformation layer and the 1st **insulating** layer sequentially.

IT **12251-88-6**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(ramp-edge Josephson junction devices from high-temp.
superconductors and methods for fabrication)

RN 12251-88-6 HCA

CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

IC ICM H01L039-22
ICS H01L031-0256; H01L029-06

INCL 257031000

CC 76-4 (Electric Phenomena)
Section cross-reference(s): 73

IT Oxides (inorganic), processes
(**perovskite** substrates; ramp-edge Josephson junction
devices from high-temp. superconductors and methods for
fabrication)

IT Dielectric films
Josephson junctions
Laser annealing
Perovskite-type crystals
Quantum devices
(ramp-edge Josephson junction devices from high-temp.
superconductors and methods for fabrication)

IT 12003-65-5, Aluminum lanthanum oxide (AlLaO3) 12060-59-2,
Strontium titanate (SrTiO3) 12230-89-6, Barium terbium oxide
(BaTbO3) 12251-80-8, Aluminum niobium strontium oxide (AlNbSr2O6)
12251-88-6, Aluminum strontium tantalum oxide (AlSr2TaO6)
(ramp-edge Josephson junction devices from high-temp.
superconductors and methods for fabrication)

L61 ANSWER 7 OF 18 HCA COPYRIGHT 2007 ACS on STN

AN 135:347873 HCA Full-text

TI Dielectric ceramic having high dielectric constant and Q value

IN Fujinaga, Masataka; Fukuda, Koichi

PA Ube Electronics Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001302333	A	20011031 <--	JP 2000-126929	20000427
	JP 2002255640	A	20020911 <--	JP 2001-50873	20010226
	US 2001056031	A1	20011227	US 2001-843373	200104

<--

US 6599854 B2 20030729

PRAI JP 2001-50873 A 20010226 <--

JP 2000-126929 A 20000427 <--

AB The ceramic comprising Ca, Ti, Al, Nb, and O has a compn. of aCaTiO3-(1-a)Ca(Al0.5Nb0.5)O3, where 0.4 ≤a ≤0.6. The ceramic has a composite **perovskite** structure of CaTiO3 and Ca(Al0.5Nb0.5)O3. The ceramic is suitable for dielec. resonator and microwave IC substrate.

IT **12250-59-8**, Aluminum calcium niobium oxide (AlCa2NbO6)
(dielec. ceramic comprising; dielec. ceramic having high dielec. const. and Q value)

RN 12250-59-8 HCA

CN Aluminum calcium niobium oxide (AlCa2NbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Nb	1	7440-03-1
Al	1	7429-90-5

IC ICM C04B035-057
ICS H01B003-12; H01G004-12; H01P007-10

CC 57-2 (Ceramics)
Section cross-reference(s): 76

ST calcium titanate dielec ceramic **perovskite** structure; aluminum calcium niobium oxide dielec ceramic

IT Electric **insulators**
(ceramic; dielec. ceramic having high dielec. const. and Q value)

IT **Perovskite**-type crystals
(dielec. ceramic with composite **perovskite** structure)

IT 12049-50-2, Calcium titanate (CaTiO3) **12250-59-8**, Aluminum calcium niobium oxide (AlCa2NbO6)
(dielec. ceramic comprising; dielec. ceramic having high dielec. const. and Q value)

L61 ANSWER 8 OF 18 HCA COPYRIGHT 2007 ACS on STN

AN 134:202149 HCA Full-text

TI Preparation of double metal alkoxides as precursors for deposition of **perovskite** oxide thin films

IN Zama, Hideaki; Tanabe, Keiichi; Morishita, Tadataka

PA International Superconductivity Technology Center, Japan

SO Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1081154	A2	20010307	EP 2000-118263	20000904 <--
EP 1081154	A3	20030319		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001073142	A	20010321	JP 1999-248467	19990902 <--

PRAI JP 1999-248467 A 19990902 <--

AB The invention relates to BB'-type double metal alkoxide (B = B+, B' = B5+; B = B3+, B' = B5+; B = B2+, B' = B5+) materials to be used for metalorg. CVD of complex **perovskite** oxide thin films having plural metallic elements included in the B sites of a **perovskite** structure ABO3, wherein the BB'-type double metal alkoxides comprise the following compds.: when B = B+, B' = B5+: BB'(O-X)6 [B = Li, Na, K; B' = Nb, Ta; X = CH3, C2H5, iPr, tBu], when B = B3+, B = B5+: BB'(O-X)8 [B = Al, Ga; B' = Nb, Ta; X = CH3, C2H5, iPr, tBu], and when B = B2+, B' = B5+: B[B'(O-X)6]2 [B = Mg, Ca, Sr, Ba; B' = Nb, Ta; X = CH3, C2H5, iPr, tBu]. The invention further pertains to the prepn. and the use of the double metal alkoxides for complex **perovskite** oxide thin film deposition. Thus, TaAl(OPr-i)8 was prepd. and reacted with Sr(DPM)2(tetraen)2 (tetraen = tetraethylenepentamine) in a binary metalorg. CVD process to give an Sr2AlTaO6 thin film for which **insulating** and dielec. properties were measured.

IT **12251-88-6P**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(prepn. by metalorg. CVD using double metal alkoxide precursor and **insulating** and dielec. properties)

RN 12251-88-6 HCA

CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

IC ICM C07F009-00
ICS C23C016-00

CC 78-2 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 76

ST alkoxide bimetallic prepn oxide film deposition precursor; metalorg CVD **perovskite** oxide film double alkoxide precursor; **perovskite** oxide film deposition double alkoxide precursor; dielec film deposition double alkoxide precursor

IT Vapor deposition process
(metalorg.; prepn. of double metal alkoxides as precursors for deposition of **perovskite** oxide thin films)

IT Dielectric films
(prepn. of double metal alkoxides as precursors for deposition of **perovskite** oxide thin films)

IT Metal alkoxides
(prepn. of double metal alkoxides as precursors for deposition of **perovskite** oxide thin films)

IT 327991-28-6P
(prepn. as precursor for deposition of **perovskite** oxide thin films)

IT 327991-29-7P
(prepn. as precursor for deposition of **perovskite** oxide thin films)

IT **12251-88-6P**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(prepn. by metalorg. CVD using double metal alkoxide precursor and **insulating** and dielec. properties)

IT 64-17-5DP, Ethanol, double metal salts, preparation 67-56-1DP, Methanol, double metal salts, preparation 67-63-0DP, Isopropanol, double metal salts 71-23-8DP, Propanol, double metal salts 71-36-3DP, Butanol, double metal salts 71-41-0DP, Pentanol, double metal salts 75-65-0DP, tert-Butanol, double metal salts 75-85-4DP, tert-Pentanol, double metal salts 78-83-1DP, Isobutanol, double metal salts 123-51-3DP, Isopentanol, double metal salts 7429-90-5DP, Aluminum, double alkoxides with niobium or tantalum, preparation 7439-93-2DP, Lithium, double alkoxides with niobium or tantalum, preparation 7439-95-4DP, Magnesium, double alkoxides with niobium or tantalum, preparation 7440-03-1DP, Niobium, double alkoxides alkali metals, alk. earth metals, aluminum or gallium, preparation 7440-09-7DP, Potassium,

double alkoxides with niobium or tantalum, preparation
7440-23-5DP, Sodium, double alkoxides with niobium or tantalum, preparation 7440-24-6DP, Strontium, double alkoxides with niobium or tantalum, preparation 7440-25-7DP, Tantalum, double alkoxides alkali metals, alk. earth metals, aluminum or gallium, preparation 7440-39-3DP, Barium, double alkoxides with niobium or tantalum, preparation 7440-55-3DP, Gallium, double alkoxides with niobium or tantalum, preparation 7440-70-2DP, Calcium, double alkoxides with niobium or tantalum, preparation
(prepn. of double metal alkoxides as precursors for deposition of **perovskite** oxide thin films)

IT 555-31-7, Aluminum triisopropoxide 16761-83-4, Tantalum(V) isopropoxide
(reactant for prepn. of double metal alkoxides as precursors for deposition of **perovskite** oxide thin films)

IT 112-57-2D, Tetraethylenepentamine, strontium complex with dipivaloylmethane 1118-71-4D, Dipivaloylmethane, strontium complex with tetraethylenepentamine 7440-24-6D, Strontium, dipivaloylmethane tetraethylenepentamine complex, reactions
(reactant with aluminum tantalum isopropoxide for metalorg. CVD deposition of **perovskite** oxide thin film)

L61 ANSWER 9 OF 18 HCA COPYRIGHT 2007 ACS on STN

AN 129:349632 HCA Full-text

TI Dielectric behavior and phonon damping in low-dielectric constant **perovskite** materials

AU Katiyar, Ram S.; Siny, Igor; Guo, R.; Bhalla, A. S.

CS Dept of Physics, University of Puerto Rico, San Juan, 00931, P. R.

SO Materials Research Society Symposium Proceedings (**1998**), 511(Low-Dielectric Constant Materials III), 165-170
CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

LA English

AB The authors have carried out a comparative study of the dielec. losses in some complex **perovskites** with both 1:1 and 1:2 compns. of the B ions, namely, SrAl1/2Nb1/2O3 (SAN), SrAl1/2Ta1/2O3 (SAT) and BaMg1/3Ta2/3O3 (BMT). The samples were prepd. in two forms, viz. ceramics and single-crystal fibers, the latter were grown by laser heated pedestal growth technique (LHPG). All of these materials possess low dielec. consts., low losses and high Q values. In contrast to relaxor ferroelecs., that as a rule exhibit broad features in their Raman spectra, SAN, SAT and esp. BMT have very narrow phonon lines in the Raman spectra. A linear correlation is found between the microwave dielec. losses and the width of 1st order phonon lines in a sequence of BMT → SAT → SAN ceramics with increasing phonon damping. Also, the phonon damping decreases in materials with nonclose-packed structure where there is enough space for undisturbed phonon vibrations. The problem of charge compensation in compds. with the B-site disorder is also discussed.

IT **12251-88-6**, Aluminum strontium tantalum oxide (Al0.5SrTa0.5O3)
(dielec. behavior and phonon damping in low-dielec. const. **perovskite** materials)

RN 12251-88-6 HCA

CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 76-9 (Electric Phenomena)

ST strontium niobate tantalate **perovskite** dielec const

IT Dielectric constant
Dielectric loss
Electric **insulators**

Perovskite-type crystals
Raman spectra
Relaxor ferroelectrics
(dielec. behavior and phonon damping in low-dielec. const. **perovskite** materials)
IT 12231-81-1, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3)
12251-80-8, Aluminum niobium strontium oxide (AlNbSr2O6)
12251-88-6, Aluminum strontium tantalum oxide (Al0.5SrTa0.5O3)
(dielec. behavior and phonon damping in low-dielec. const. **perovskite** materials)
RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L61 ANSWER 10 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 127:325102 HCA Full-text
TI Design of dielectric substrates for high-Tc superconductor films
AU Bhalla, A.; Guo, R.
CS Materials Research Laboratory, The Pennsylvania State University University Park, PA, 16802, USA
SO Acta Physica Polonica, A (1997), 92(1), 7-21
CODEN: ATPLB6; ISSN: 0587-4246
PB Polish Academy of Sciences, Institute of Physics
DT Journal
LA English
AB Investigations on the design and engineering of candidate substrate materials suitable for high-Tc superconductor thin-film deposition and applications have yielded several exciting new hosts such as Ba(Mg1/3Ta2/3)O3, Sr(Al1/2Ta1/2)O3, and Sr(Al1/2Nb1/2)O3. Dielec. properties, **thermal expansion coeffs.**, melting temps., and growth feasibility were tested for a wide range of substrate materials and solid solns. These complex **perovskite** crystals and their assocd. solid solns. provide new options for ultralow loss, low permittivity substrates with close structural and thermal matching to the YBa2Cu3O7-δ. Several new materials have been tested for high-Tc superconductor film depositions. A laser-heated pedestal growth system has been used as an essential tool in producing single crystals for testing. Development on the predictive capability of the dielec. const. of ionic solids, by improving Shannon's approach, is also discussed in this paper.
IT **12251-88-6**, Aluminum Strontium Tantalum oxide (AlSr2TaO6)
(substrate; dielec. substrates for high-Tc superconductor films)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 76-4 (Electric Phenomena)
IT 12231-81-1, Barium Magnesium Tantalum oxide (Ba3MgTa2O9)
12251-80-8, Aluminum Niobium Strontium oxide (AlNbSr2O6)
12251-88-6, Aluminum Strontium Tantalum oxide (AlSr2TaO6)
(substrate; dielec. substrates for high-Tc superconductor films)
RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L61 ANSWER 11 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 125:233292 HCA Full-text
TI Temperature-dependent Raman spectroscopic studies on microwave dielectrics Sr(Al1/2Ta1/2)O3 and Sr(Al1/2Nb1/2)O3
AU Tao, Ruiwu; Guo, A. R.; Tu, C. S.; Siny, I.; Katiyar, R. S.; Guo, Ruyan; Bhalla, A. S.
CS Dep. Phys., Univ. Puerto Rico, Rio Piedras, 00931, P. R.
SO Ferroelectrics, Letters Section (1996), 21(3/4), 79-85

CODEN: FELEDJ; ISSN: 0731-5171
PB Gordon & Breach
DT Journal
LA English
AB Complex oxide **perovskites**, namely Sr(Al0.5Ta0.5)O3 (SAT) and Sr(Al0.5Nb0.5)O3 (SAN) were recently investigated to be potential substrate materials for HTSC films in microwave applications. Single crystals (disordered phase) were prepd. by laser heated pedestal growth technique (LHPG) and ordered ceramics samples were prepd. by conventional **sintering** technique. Raman vibrational spectrum studies on them were reported for the 1st time. Order-disorder effects of (Al,Ta) and (Al,Nb) sites were studied by comparing Raman spectra of single-crystal samples with ceramic samples. Influences of B sites (Ta and Nb) on O-O modes are discussed in relation to their dielec. properties.
IT **12251-88-6**, Aluminum strontium tantalum oxide
(Al0.5SrTa0.5O3)
(temp.-dependent Raman spectroscopic studies on microwave dielecs. in ceramic and fiber form)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
ST strontium aluminum tantalum oxide Raman spectrum; niobium aluminum strontium oxide Raman spectrum; microwave dielec strontium **perovskite** vibrational spectrum; order disorder strontium **perovskite** ceramics Raman
IT Ceramic materials and wares
Electric **insulators** and Dielectrics
Raman spectra
(temp.-dependent Raman spectroscopic studies on microwave dielecs. Sr(Al0.5Ta0.5)O3 and Sr(Al0.5Nb0.5)O3 in ceramic and fiber form)
IT 12251-80-8, Aluminum niobium strontium oxide (AlNbSr2O6)
12251-88-6, Aluminum strontium tantalum oxide
(Al0.5SrTa0.5O3)
(temp.-dependent Raman spectroscopic studies on microwave dielecs. in ceramic and fiber form)

L61 ANSWER 12 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 124:357474 HCA Full-text
TI Oxide **perovskite** crystals for HTSC film substrates. Microwave applications
AU Bhalla, A.S.; Guo, Ruyan
CS Materials Research Laboratory, Pennsylvania State University, University Park, PA, 16802, USA
SO NASA Conference Publication (**1995**), 3290(Proceedings of the Fourth International Conference and Exhibition: World Congress on Superconductivity, 1994, Vol. 1), 188-197
CODEN: NACPDX; ISSN: 0191-7811
PB National Aeronautics and Space Administration
DT Journal
LA English
AB The research focused upon generating new substrate materials for the deposition of superconducting yttrium barium cuprate (YBCO) has yielded several new hosts in complex **perovskites**, modified **perovskites**, and other structure families. New substrate candidates such as Sr(Al1/2Ta1/2)O3 and Sr(Al1/2Nb1/2)O3, Ba(Mg1/3Ta2/3)O3 in the complex oxide **perovskite** structure family and their solid solns. with ternary **perovskite** LaAlO3 and NdGaO3 are reported. Conventional ceramic processing techniques were used to fabricate dense

ceramic samples. A laser-heated molten zone growth system was utilized for the test growth of these candidate materials in single-crystal fiber form to det. crystal structure, **m.p.**, thermal properties, and dielec. properties as well as to make pos. identification of twin free systems. Some of those candidate materials present an excellent combination of properties suitable for microwave HTSC substrate applications.

IT **12251-88-6**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(**perovskite** crystals; as substrate for high-Tc superconductor films for microwave applications)

RN 12251-88-6 HCA

CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 76-4 (Electric Phenomena)

ST **perovskite** oxide substrate high temp superconductor; yttrium barium cuprate **perovskite** oxide substrate; niobate strontium aluminum substrate cuprate superconductor; tantalate strontium aluminum substrate cuprate superconductor; magnesium barium tantalate substrate cuprate superconductor

IT Superconductors
(high-temp., oxide **perovskite** crystals for superconductive YBCO film substrates for microwave applications)

IT 12003-65-5D, Aluminum lanthanum oxide (AlLaO3), solid solns. with **perovskite** oxides 12207-22-6D, Gallium neodymium oxide (GaNdO3), solid solns. with **perovskite** oxides
(as substrate for high-Tc superconductor films for microwave applications)

IT 109064-29-1, Barium copper yttrium oxide (Ba2Cu3YO7)
(oxide **perovskite** crystals for superconductive YBCO film substrates for microwave applications)

IT 12231-81-1, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) 12251-80-8, Aluminum niobium strontium oxide (AlNbSr2O6) **12251-88-6**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(**perovskite** crystals; as substrate for high-Tc superconductor films for microwave applications)

L61 ANSWER 13 OF 18 HCA COPYRIGHT 2007 ACS on STN

AN 122:201495 HCA Full-text

TI Candidate HTSC film substrates of complex oxide **perovskite** compositions

AU Guo, Ruyan; Bhalla, A. S.; Roy, Rustum; Cross, L. E.

CS Materials Research Laboratory, Pennsylvania State Univ., Univ. Park, PA, 16802, USA

SO Materials Research Society Symposium Proceedings (**1994**), 341(Epitaxial Oxide Thin Films and Heterostructures), 215-20 CODEN: MRSPDH; ISSN: 0272-9172

DT Journal

LA English

AB The research focused upon generating new substrate materials for the deposition of superconducting Y Ba cuprate (YBCO) has yielded several new hosts in complex **perovskites**, modified **perovskites**, and other structure families. New substrate candidates such as Sr(Al1/2Ta1/2)O3 and Sr(Al1/2Nb1/2)O3, Ba(Mg1/3Ta2/3)O3 in complex oxide **perovskite** structure family and their solid solns. with ternary **perovskite** LaAlO3 and NdGaO3 are reported. Conventional ceramic processing techniques were used to fabricate dense ceramic samples. A laser heated molten zone growth system was used for the test-growth of these candidate materials in single crystal fiber form to det. crystallog. structure, **m.p.**, thermal, and dielec. properties as well as to make pos. identification of twin free systems. Some of those candidate materials present an excellent combination of properties suitable for microwave HTSC substrate applications.

IT **12251-88-6P**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(prepn. for use as YBCO film deposition substrates of

perovskite-type)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide ($AlSr_2TaO_6$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 57, 76
ST oxide **perovskite** substrate prepn cuprate deposition
IT Superconductors
(barium copper yttrium oxide; prepn. of ceramic complex oxide **perovskite** compns. for substrates for deposition of films of)
IT Oxides, preparation
(prepn. for use as YBCO film deposition substrates of **perovskite-type**)
IT 12231-81-1P, Barium magnesium tantalum oxide ($BaMg_{0.33}Ta_{0.67}O_3$)
12251-80-8P, Aluminum niobium strontium oxide ($AlNbSr_2O_6$)
12251-88-6P, Aluminum strontium tantalum oxide ($AlSr_2TaO_6$)
161853-58-3P 161853-59-4P 161853-60-7P
(prepn. for use as YBCO film deposition substrates of **perovskite-type**)

L61 ANSWER 14 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 122:194763 HCA Full-text
TI Strontium aluminum tantalum oxide and strontium aluminum niobium oxide as potential substrates for HTSC thin films
AU Guo, Ruyan; Bhalla, A. S.; Sheen, Jyh; Ainger, F. W.; Erdei, S.; Subbarao, E. C.; Cross, L. E.
CS Materials Res. Lab., Pennsylvania State Univ., University Park, PA, 16802-4800, USA
SO Journal of Materials Research (**1995**), 10(1), 18-25
CODEN: JMREEE; ISSN: 0884-2914
PB Materials Research Society
DT Journal
LA English
AB Single crystal fibers of $A(B1_{1/2}B2_{1/2})O_3$ **perovskites** type with compns. $Sr(Al_{1/2}Ta_{1/2})O_3$ (SAT) and $Sr(Al_{1/2}Nb_{1/2})O_3$ (SAN) were grown successfully for the first time, using a laser-heated pedestal growth technique. Their crystallog. structures were found to be simple cubic **perovskite** with lattice parameters a = 3.8952 Å (SAT) and a = 3.8995 Å (SAN) that are close lattice matches to the YBCO superconductors. No structural phase transitions or twins have been found, and the av. **coeffs.** of the **thermal expansion** match well with the YBCO superconductor materials. SAT is one of the most promising substrates to date the epitaxial growth of high Tc superconducting (HTSC) thin films suitable for microwave device applications as it has low dielec. consts. (κ .apprx. 11-12, at 100 Hz-10 GHz and 300 K) and low dielec. loss (.apprx.4 + 10-5 at 10 kHz and 80 K), together with lattice parameter matching, **thermal expansion** matching, and chem. compatibility with the high Tc superconductors (YBCO).
IT **12251-88-6**, Aluminum strontium tantalum oxide ($AlSr_2TaO_6$)
(growth of single crystal fibers and characterization for substrates for superconductors)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide ($AlSr_2TaO_6$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6

Al	1	7429-90-5

CC 57-2 (Ceramics)
Section cross-reference(s): 76
IT 12251-80-8, Aluminum niobium strontium oxide ($AlNbSr_2O_6$)
12251-88-6, Aluminum strontium tantalum oxide ($AlSr_2TaO_6$)
(growth of single crystal fibers and characterization for substrates for superconductors)

L61 ANSWER 15 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 122:69331 HCA Full-text
TI In situ MOCVD of dielectric materials for high-Tc superconducting devices
AU Han, Bin; Neumayer, Deborah A.; Goodreau, Bruce H.; Marks, Tobin J.
CS Materials Research Center, Northwestern University, Evanston, IL, 60208-3113, USA
SO Advances in Cryogenic Engineering (1994), 40(PT. A), 417-24
CODEN: ACYEAC; ISSN: 0065-2482
DT Journal
LA English
AB Devices which use high-Tc superconducting films require dielec. materials with low dielec. losses (tan δ), low dielec. consts., chem. inertness, and similar **coeffs.** of **thermal expansion** to HTS materials. A major advance in the fabrication of such devices would be the deposition of high-quality dielec. films by MOCVD (metalorg. CVD) which would enable the efficient, large-scale fabrication of multilayer superconductor-**insulator** structures. The authors report MOCVD of epitaxial thin films of various **perovskite** HTS lattice-matched dielec. materials: $NdGaO_3$, $PrGaO_3$, $YAlO_3$, and Sr_2AlTaO_6. These **perovskite** dielec. films were grown in situ on single-crystal substrates in a horizontal reactor using volatile metalorg. diketonate complexes as precursors. Film morphol. and microstructure are characterized by SEM and cross-sectional TEM. Energy-dispersive x-ray anal. is used to verify the stoichiometry. The crystallinity and epitaxy of the dielec. films are characterized by x-ray diffraction.
IT **12251-88-6**, Aluminum strontium tantalum oxide ($AlSr_2TaO_6$)
(in situ MOCVD of dielec. materials for high-Tc superconducting devices)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide ($AlSr_2TaO_6$) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 76-4 (Electric Phenomena)
Section cross-reference(s): 75
IT Electric **insulators** and Dielectrics
Superconductor devices
(in situ MOCVD of dielec. materials for high-Tc superconducting devices)
IT 12003-86-0, Aluminum yttrium oxide ($AlYO_3$) 12207-22-6, Gallium neodymium oxide ($GaNdO_3$) **12251-88-6**, Aluminum strontium tantalum oxide ($AlSr_2TaO_6$) 12273-27-7, Gallium praseodymium oxide ($GaPrO_3$) 107539-20-8, Barium copper yttrium oxide
(in situ MOCVD of dielec. materials for high-Tc superconducting devices)

L61 ANSWER 16 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 120:204911 HCA Full-text
TI Cubic dielectrics for superconducting electronics. In situ growth of epitaxial strontium aluminum tantalate (Sr_2AlTaO_6) thin films using metalorganic chemical vapor deposition
AU Han, Bin; Neumayer, Deborah A.; Goodreau, Bruce H.; Marks, Tobin J.;

Zhang, Hong; Dravid, Vinayak P.
CS Dep. Chem., Northwestern Univ., Evanston, IL, 60208-3113, USA
SO Chemistry of Materials (**1994**), 6(1), 18-20
CODEN: CMATEX; ISSN: 0897-4756
DT Journal
LA English
AB Phase-pure thin films of the YBCO, BSCCO, TBCCO lattice-matched and low dielec. loss ternary **perovskite insulator** Sr2AlTaO6 (SAT) were grown in situ on single-crystal (110) LaAlO3 substrates by metal-org. CVD (MOCVD). Films were grown at 750-850° using the volatile metal-org. β-diketonate precursors Al(acac)3 (acac = acetylacetonate), Sr(hfa)2(tetraglyme) (hfa = hexafluoroacetylacetate), and Ta2(OEt)10. The films grow epitaxially on LaAlO3 at 850° with a high degree of (001) plane orientation parallel to the substrate surface. At a 750° deposition temp., the films are poorly oriented and multiphase (Sr2AlTaO6, SrF2, and SrAl4O7), while at 800°, phase-pure films grow oriented with a (100) growth direction but exhibit broad rocking curves. The MOCVD-derived Sr2AlTaO6 films grown at 850° have smooth, featureless surfaces. High resoln. electron microscopy confirms epitaxial growth and an atomically abrupt SAT-LaAlO3 interfaces. TEM selected area diffraction confirms epitaxial growth exclusively with a (001) growth orientation. AFM indicates a surface roughness on the order of ±75 Å.
IT **12251-88-6**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(OMVPE of dielec.)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 75-1 (Crystallography and Liquid Crystals)
Section cross-reference(s): 76
IT **12251-88-6**, Aluminum strontium tantalum oxide (AlSr2TaO6)
(OMVPE of dielec.)

L61 ANSWER 17 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 95:137097 HCA Full-text
TI Strontium ceramics for chemical applications
AU Gray, T. J.
CS Atl. Ind. Res. Inst., Halifax, Can.
SO Journal of Power Sources (**1981**), 6(2), 121-42
CODEN: JPSODZ; ISSN: 0378-7753
DT Journal
LA English
AB More than 450 Sr-contg. **perovskites** and related compds. were prepd. by classical ceramic methods or by chem. processes from solns. and characterized by x-ray diffraction and elec. conduction, with respect to their potential as electrodes in a wide range of electrochem. processes, highly active catalysts, and MHD-electrode material. Of particular interest were La0.55.Sr0.15CoO3, La0.8Sr0.2(Co0.8Ni0.2)O3 and SrRuO3 with resistivities < 1 m Ω/cm at room temp., and **insulating perovskites** such as SrTiO3 and SrZrO3. The cond. of **perovskites** was significantly affected by variations in elemental compn. or deviations from stoichiometry.
IT **12251-88-6P**
(prepn. and crystal structure of, for ceramics)
RN 12251-88-6 HCA
CN Aluminum strontium tantalum oxide (AlSr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Al	1	7429-90-5

CC 57-7 (Ceramics)
ST strontium compd ceramic property; **perovskite** structure

strontium compd; elec cond strontium compd; electrode strontium
compd; catalyst strontium compd; MHD electrode strontium compd
IT **Perovskite**-type crystals
(strontium compds., for catalysts and electrodes)
IT 7440-24-6DP, compds. 11074-43-4P 11074-45-6P 11120-62-0P
12016-85-2P 12016-94-3P 12018-98-3P 12018-99-4P 12022-78-5P
12028-18-1P 12028-19-2P 12028-21-6P 12029-24-2P 12031-16-2P
12036-39-4P 12036-66-7P 12036-67-8P 12036-99-6P 12037-00-2P
12060-59-2P 12062-93-0P 12063-21-7P 12143-36-1P 12143-74-7P
12143-75-8P 12159-30-7P 12159-54-5P 12160-90-6P 12161-70-5P
12161-71-6P 12162-48-0P 12162-66-2P 12162-67-3P 12164-35-1P
12164-36-2P 12164-37-3P 12165-09-2P 12175-49-4P 12179-31-6P
12181-51-0P 12181-54-3P 12186-37-7P 12210-44-5P 12251-80-8P
12251-88-6P 12267-97-9P 12324-75-3P 12383-58-3P
12437-81-9P 12438-63-0P 12439-23-5P 12439-29-1P 12439-86-0P
12449-76-2P 12508-37-1P 12528-02-8P 12528-71-1P 12528-77-7P
12528-78-8P 12528-80-2P 12591-63-8P 12710-56-4P 39282-77-4P
50812-08-3P 55893-32-8P 60862-58-0P 60862-59-1P 60874-53-5P
60922-18-1P 61029-48-9P 61029-57-0P 78402-88-7P 78402-90-1P
78519-55-8P 80892-05-3P 138265-48-2P
(prepn. and crystal structure of, for ceramics)

L61 ANSWER 18 OF 18 HCA COPYRIGHT 2007 ACS on STN
AN 82:143698 HCA Full-text
TI Limiting working temperature of heating units made of
current-conducting cermets
AU Koftelev, V. T.
CS Volzhskoe Ob'edin. "Avto-Vaz", USSR
SO Poroshkovaya Metallurgiya (Kiev) (1974), (12), 57-60
CODEN: PMANAI; ISSN: 0032-4795
DT Journal
LA Russian
AB Factors limiting the operating temp. of refractory metal-oxide heating elements were calcd. An expression was obtained to describe the behavior of cermets such as Al2O3-15 vol.% Nb. Limiting working temps. were increased by (1) using highly insulating oxide (2) cermets with low elec. resistivity (3) metals with high temp. coeff. of elec. resistivity (4) increased metal concn.
IT **55800-83-4**
(elec. resistor heating elements, limiting operating temps. for)
RN 55800-83-4 HCA
CN Aluminum oxide (Al2O3), alloy, Al2O3 65,Nb 32,BeO 2.5 (9CI) (CA
INDEX NAME)

Component	Component Percent	Component Registry Number
Al2O3	65	1344-28-1
Nb	32	7440-03-1
BeO	2.5	1304-56-9

CC 56-3 (Nonferrous Metals and Alloys)
IT **55800-83-4** 55800-84-5 55800-85-6
(elec. resistor heating elements, limiting operating temps. for)

=> D L62 1-19 BIB ABS HITSTR HITIND

L62 ANSWER 1 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 136:409708 HCA Full-text
TI Development of Ba2REMO6 (RE = rare-earth, M = Hf, Zr, Sn, Nb, Ta,
Sb): A new class of substrate materials for high Tc superconductors
AU Koshy, J.; Jose, R.; John, Asha M.; Thomas, J. K.; Kurian, J.
CS Regional Research Laboratory (CSIR), Thiruvananthapuram, 695 019,
India

SO Metals, Materials and Processes (**2001**), 13(2-4), 301-310
CODEN: MEMPEX; ISSN: 0970-423X
PB Meshap Science Publishers
DT Journal
LA English
AB A group of complex **perovskite** oxides Ba2REMO6 (RE = Rare-Earth, M = Hf, Zr, Sn, Nb, Ta, Sb) was synthesized and developed for their use as substrates for both YBa2Cu3O7 and Bi (2223) superconductors. These materials have a complex cubic **perovskite** (A2BBO6) structure with lattice consts., a = 8.48-8.60 Å. Ba2REMO6 did not show any phase transition in the temp. range 30 to 1300°. The **thermal expansion coeff.**, **thermal** diffusivity and thermal cond. values of Ba2REMO6 are favorable for their use as substrates for high-Tc superconductors. The dielec. const. and loss factor of Ba2REMO6 are in a range suitable for their use as substrates for microwave applications. Both YBa2Cu3O7 and Bi (2223) superconductors did not show any detectable chem. reaction with Ba2REMO6 even under extreme processing conditions. Dip coated YBa2Cu3O7 thick films on polycryst. Ba2REMO6 substrate gave a Tc(0) of 92 K and a c.d. of .apprx.1.1 + 104 A/cm2 and Bi(2223) thick film on polycryst. Ba2REMO6substrate gave a Tc(0) of 110 K and a c.d. of .apprx.4 + 103 A/cm2 at 77 K and zero magnetic field. A laser ablated YBa2Cu3O7 thin film deposited on polycryst. Ba2REMO6 substrate gave a Tc(0) of 90 K and a c.d. of .apprx.5 + 105 A/cm2. The superconducting YBa2Cu3O7 film grown on epitaxial Ba2REMO6 film gave a Tc(0) .apprx. 90 K with a sharp transition of ΔT = 0.4 K. The crit. c.d. of 6 + 106 A / cm2 was obtained for the YBa2Cu3O7 film developed on epitaxial Ba2REMO6 films.
IT **12231-38-8P**, Barium lanthanum niobium oxide (Ba2LaNbO6)
(properties of barium rare earth metal oxides as substrates for cuprate superconductor films)
RN 12231-38-8 HCA
CN Barium lanthanum niobium oxide (Ba2LaNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
La	1	7439-91-0

CC 76-4 (Electric Phenomena)
IT **12231-38-8P**, Barium lanthanum niobium oxide (Ba2LaNbO6)
199920-62-2P, Barium europium zirconium oxide (Ba2EuZrO5.5)
(properties of barium rare earth metal oxides as substrates for cuprate superconductor films)
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 2 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 135:281408 HCA Full-text
TI Structural, thermal and dielectric properties of barium lanthanum niobate: a potential material for substrate application
AU Kurian, J.; Pai, S. P.; James, J.; Koshy, J.
CS Regional Research Laboratory (CSIR), Trivandrum, 695 019, India
SO Journal of Materials Science: Materials in Electronics (**2001**), 12(3), 173-177
CODEN: JSMEEV; ISSN: 0957-4522
PB Kluwer Academic Publishers
DT Journal
LA English
AB Ba La niobate was prepd. as single phase compd. by solid-state route. The structure of Ba2LaNbO6 was studied by power x-ray diffraction method and has a cubic **perovskite** (A2BB'O6) structure with a lattice const. a 8.60 Å. Ba2LaNbO6 did not show any phase transition in the temp. range 30-1300° as revealed by DTA studies. **Thermal expansion coeff.** of Ba2LaNbO6 measured by TMA studies was 8.1 + 10-6 °C-1. The sp. heat capacity of Ba2LaNbO6 obtained from DSC measurements was 383 Jkg-1K-1 and the thermal diffusivity measured following the photoacoustic technique is equal to 0.25 cm2s-1. Ba2LaNbO6 has a moderately low dielec. const. and loss factor values making it suitable as substrate for microwave applications.
IT **12231-38-8P**, Barium lanthanum niobium oxide (Ba2LaNbO6)
(structural, thermal and dielec. properties of barium lanthanum niobate)
RN 12231-38-8 HCA
CN Barium lanthanum niobium oxide (Ba2LaNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
La	1	7439-91-0

CC 76-10 (Electric Phenomena)
ST barium lanthanum niobate structure dielec **expansion** **heat** capacity
IT Crystal structure
Dielectric constant
Dielectric loss
Heat capacity
Thermal conductivity
Thermal expansion
(structural, **thermal** and dielec. properties of barium lanthanum niobate)
IT **12231-38-8P**, Barium lanthanum niobium oxide (Ba_2LaNbO_6)
(structural, thermal and dielec. properties of barium lanthanum niobate)
RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 3 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 133:366797 HCA Full-text
TI Subsolidus phase relations and dielectric properties in the $SrO-Al_2O_3-Nb_2O_5$ system
AU Chan, Julia Y.; Levin, I.; Vanderah, T. A.; Geyer, R. G.; Roth, R. S.
CS National Institute of Standards and Technology, Gaithersburg, MD, 20899, USA
SO International Journal of Inorganic Materials (**2000**), 2(1), 107-114
CODEN: IJIMCR; ISSN: 1466-6049
PB Elsevier Science Ltd.
DT Journal
LA English
AB Subsolidus phase equil. in the $SrO-Al_2O_3-Nb_2O_5$ system were detd. by synthesis of 75 compns. in air in the temp. range 1200-1600°. Phase assemblages were detd. by x-ray powder diffraction at room temp. Two new ternary compds., Sr_4AlNbO_8 and $Sr_{5.7}Al_{0.7}Nb_{9.3}O_{30}$, form in addn. to the known double **perovskite**, Sr_2AlNbO_6 (space group Fm.hivin.3m, a 7.7791(1) Å). Sr_4AlNbO_8 crystallizes with a monoclinic unit cell (space group P21/c; a 7.1728(2), b 5.8024(2), c 19.733(1) Å; β 97.332(3)°) detd. by electron diffraction studies; the lattice parameters were refined using x-ray powder diffraction data. This compd. decomps. >1525°; attempts to grow single crystals from neat partial melts, or using a Sr borate flux, were unsuccessful. The phase $Sr_{5.7}Al_{0.7}Nb_{9.3}O_{30}$ ($Sr_{6-x}Al_{1-x}Nb_{9+x}O_{30}$, x = 0.3) forms with the tetragonal W bronze structure (space group P4bm; a 12.374(1), c 3.8785(1) Å), melts incongruently near 1425°, and occurs essentially as a point compd., with little or no range of x-values; indexed x-ray powder diffraction data are given. The W bronze structure exhibits a narrow region of stability in the $SrO-Al_2O_3-Nb_2O_5$ system, which is probably related to the small size of Al^{3+}. The existence of an extensive cryolite-type solid soln., $Sr_3(Sr_{1+x}Nb_{2-x})O_{9-3/2x}$, occurring between $Sr_4Nb_2O_9$ (x = 0) and $Sr_6Nb_2O_{11}$ (x = 0.5), was confirmed, with cubic lattice parameters ranging from 8.268(2) to 8.303(1) Å, resp. The dielec. properties of the three ternary compds. occurring in the system were measured using the specimen as a TE_{011} or $TE_{0\gamma\delta}$ dielec. resonator: Sr_2AlNbO_6: εr = 25, τf = -3 ppm/°C, tan δ = 1.9 + 10-3 (7.7 GHz); Sr_4AlNbO_8: εr = 27, tan δ = 2.8 + 10-3 (10.5 GHz); $Sr_{5.7}Al_{0.7}Nb_{9.3}O_{30}$: εr = 168, tan δ = 3.8 + 10-2 (3.1 GHz). Sr_2AlNbO_6, when **sintered** in 1 atm O, exhibited a reduced permittivity (εr = 21) and a significantly improved dielec. loss tangent (tan δ = 5.2 + 10-4, 8.3 GHz), resulting in a 4-fold increase in Q+f as compared to the specimen **sintered** in air.
IT **12251-80-8**, Aluminum niobium strontium oxide ($AlNbSr_2O_6$)
(dielec. properties of)
RN 12251-80-8 HCA
CN Aluminum niobium strontium oxide ($AlNbSr_2O_6$) (9CI) (CA INDEX NAME)

Component | Ratio | Component

		Registry Number
O	6	17778-80-2
Sr	2	7440-24-6
Nb	1	7440-03-1
Al	1	7429-90-5

CC 68-1 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 75, 76
IT **12251-80-8**, Aluminum niobium strontium oxide (AlNbSr2O6)
(dielec. properties of)
RE.CNT 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 4 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 131:251010 HCA Full-text
TI Novel ceramic substrates for high Tc superconductors
AU Koshy, J.; Kurian, J.; Jose, R.; John, Asha M.; Sajith, P. K.;
James, J.; Pai, S. P.; Pinto, R.
CS Regional Research Laboratory (CSIR), Trivandrum, 695 019, India
SO Bulletin of Materials Science (1999), 22(3), 243-249
CODEN: BUMSDW; ISSN: 0250-4707
PB Indian Academy of Sciences
DT Journal
LA English
AB A group of complex **perovskite** oxides REBa2NbO6 (RE = La and Dy) have been synthesized and developed for their use as substrates for both YBa2Cu3O7-δ and Bi(2223) superconductors. These materials have a complex cubic **perovskite** (A2BB'O6) structure with lattice consts., a = 8.48-8.60 A. REBa2NbO6 did not show any phase transition in the temp. range 30-1300°C. The **thermal expansion coeff.**,
thermal diffusivity and thermal cond. values of REBa2NbO6 are favorable for their use as substrates for high Tc superconductors. The dielec. const. and loss factor of REBa2NbO6 are in a range suitable for their use as substrates for microwave applications. Both YBa2Cu3O7-δ and Bi(2223) superconductors did not show any detectable chem. reaction with REBa2NbO6 even under extreme processing conditions. Dip coated YBa2Cu3O7-δ thick films on polycryst. REBa2NbO6 substrate gave a Tc(0) of 92 K and a c.d. of .apprx. 1.1 + 104 A/cm2 and Bi(2223) thick film on polycryst. REBa2NbO6 substrate gave a Tc(0) of 110 K and a c.d. of .apprx. 4 + 103 A/cm2 at 77 K and zero magnetic field. A laser ablated YBa2Cu3O7-δ thin film deposited on polycryst. REBa2NbO6 substrate gave a Tc(0) of 90 K and a c.d. of .apprx. 5 + 105 A/cm2.
IT **12231-38-8P**, Barium lanthanum niobium oxide Ba2LaNbO6
12448-86-1P, Barium dysprosium niobium oxide Ba2DyNbO6
(ceramic substrates for high Tc superconductors)
RN 12231-38-8 HCA
CN Barium lanthanum niobium oxide (Ba2LaNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
La	1	7439-91-0

RN 12448-86-1 HCA
CN Barium dysprosium niobium oxide (Ba2DyNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
Dy	1	7429-91-6

CC 76-4 (Electric Phenomena)

Section cross-reference(s): 57, 69, 75
IT Crystal structure-property relationship
Dielectric constant
Dielectric loss
Electric resistance
Heat capacity
Superconducting films
Thermal conductivity
Thermal expansion
(ceramic substrates for high Tc superconductors)
IT Electric **insulators**
(ceramic; ceramic substrates for high Tc superconductors)
IT **12231-38-8P**, Barium lanthanum niobium oxide Ba2LaNbO6
12448-86-1P, Barium dysprosium niobium oxide Ba2DyNbO6
(ceramic substrates for high Tc superconductors)
RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 5 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 131:109537 HCA Full-text
TI Development and characterization of dysprosium barium niobate: a new substrate for YBa2Cu3O7-δ and (Bi,Pb)2Sr2Ca2Cu3Ox superconductor films
AU Kurian, J.; Pai, S. P.; Sajith, P. K.; Nair, K. V. O.; Kumar, K. S.; Koshy, J.
CS Electronic Ceramics, Regional Research Laboratory (CSIR), Trivandrum, 695 019, India
SO Physica C: Superconductivity (Amsterdam) (1999), 316(1&2), 107-112
CODEN: PHYCE6; ISSN: 0921-4534
PB Elsevier Science B.V.
DT Journal
LA English
AB Dysprosium barium niobate has been developed as a new substrate suitable for both YBa2Cu3O7-δ (YBCO) and (Bi,Pb)2Sr2Ca2Cu3Ox [Bi(2223)] superconductor films. DyBa2NbO6 (DBNO) has a cubic **perovskite** (A2BB'O6) structure with a lattice const. a=8.456 A. DBNO was found to have a **thermal expansion coeff.** of 7.806+10-6 °C-1 and a thermal cond. of 67.9 W m-1 K-1. The dielec. const. and loss factor values of DBNO are also in a range suitable for its use as substrate for microwave applications. Both YBCO and Bi(2223) superconductors did not show any detectable chem. reaction with DBNO even under extreme processing conditions. Dip-coated YBCO thick film on polycryst. DBNO substrate gave a Tc(0) of 92 K and Jc of .apprx.1.1+104 A cm-2. Bi(2223) thick film dip-coated on DBNO gave Tc(0) of 110 K and Jc of .apprx.4+103 A cm-2.
IT **12448-86-1**, Barium dysprosium niobium oxide Ba2DyNbO6
(substrate for superconductor; development and characterization of dysprosium barium niobate: a new substrate for YBa2Cu3O7-δ and (Bi,Pb)2Sr2Ca2Cu3Ox superconductor films)
RN 12448-86-1 HCA
CN Barium dysprosium niobium oxide (Ba2DyNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
Dy	1	7429-91-6

CC 76-4 (Electric Phenomena)
Section cross-reference(s): 57
IT **Thermal expansion**
(**coeff.** for substrate; development and characterization of dysprosium barium niobate: a new substrate for YBa2Cu3O7-δ and (Bi,Pb)2Sr2Ca2Cu3Ox superconductor films)
IT **Perovskite**-type crystals

(substrate for superconductor; development and characterization of dysprosium barium niobate: a new substrate for $YBa_2Cu_3O_{7-\delta}$ and $(Bi,Pb)_2Sr_2Ca_2Cu_3O_x$ superconductor films)

IT **12448-86-1**, Barium dysprosium niobium oxide Ba_2DyNbO_6
(substrate for superconductor; development and characterization of dysprosium barium niobate: a new substrate for $YBa_2Cu_3O_{7-\delta}$ and $(Bi,Pb)_2Sr_2Ca_2Cu_3O_x$ superconductor films)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 6 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 130:226326 HCA Full-text
TI Bi(2223) thick films (Tc(0) = 109 K) on Ba_2GdNbO_6: a new **perovskite** ceramic substrate for BSCCO superconductor
AU Kurian, J.; Nair, K. V. O.; Sajith, P. K.; John, Asha M.; Koshy, J.
CS Regional Research Laboratory (CSIR), Trivandrum, 695 019, India
SO Applied Superconductivity (1998), 6(6), 259-265
CODEN: ASUEE6; ISSN: 0964-1807
PB Elsevier Science Ltd.
DT Journal
LA English
AB Ba_2GdNbO_6 has been developed as a new substrate suitable for the BSCCO superconductor. Ba_2GdNbO_6 has a complex cubic **perovskite** ($A_2BB'O_6$) structure with a lattice const. a = 8.587 Å. The DTA studies revealed that there is no phase transition occurring in Ba_2GdNbO_6 in the temp. range of 30-1300 °C. The **thermal expansion coeff**. of Ba_2GdNbO_6 is found to be 7.913 + 10-6°/C. The dielec. const. and loss factor of Ba_2GdNbO_6 are in a range suitable for its use as a substrate for microwave applications. The Bi(2223) superconductor does not show any detectable chem. reaction with Ba_2GdNbO_6 even under extreme processing conditions. The thick films of Bi(2223) dip-coated on polycryst. Ba_2GdNbO_6 substrate gave a Tc (0) of 109 K and a c.d. of approx. 4 + 103 A/cm2 at 77 K and zero magnetic field.

IT **12047-52-8**, Barium gadolinium niobium oxide (Ba_2GdNbO_6)
(substrates; Bi(2223) superconducting thick films on Ba_2GdNbO_6 **perovskite** ceramic substrates and properties of substrate and film)
RN 12047-52-8 HCA
CN Barium gadolinium niobium oxide (Ba_2GdNbO_6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Gd	1	7440-54-2
Ba	2	7440-39-3
Nb	1	7440-03-1

CC 57-2 (Ceramics)
Section cross-reference(s): 76
ST barium gadolinium niobate **perovskite** ceramic substrate cuprate superconducting film; bismuth calcium lead strontium cuprate film **perovskite** ceramic substrate
IT Superconducting critical current density
Superconducting critical temperature
(Bi(2223) superconducting thick films on Ba_2GdNbO_6 **perovskite** ceramic substrates and properties of substrate and film)
IT **Perovskite**-type crystals
(barium gadolinium niobate; Bi(2223) superconducting thick films on Ba_2GdNbO_6 **perovskite** ceramic substrates and properties of substrate and film)
IT Superconductors
(ceramic, bismuth calcium lead strontium cuprate; Bi(2223) superconducting thick films on Ba_2GdNbO_6 **perovskite** ceramic substrates and properties of substrate and film)
IT Dielectric constant

Dielectric loss
Thermal expansion
(of substrate; Bi(2223) superconducting thick films on Ba2GdNbO6 **perovskite** ceramic substrates and properties of substrate and film)
IT Ceramics
(substrates, barium gadolinium niobate; Bi(2223) superconducting thick films on Ba2GdNbO6 **perovskite** ceramic substrates and properties of substrate and film)
IT Ceramics
(superconductors, bismuth calcium lead strontium cuprate; Bi(2223) superconducting thick films on Ba2GdNbO6 **perovskite** ceramic substrates and properties of substrate and film)
IT Films
(thick, bismuth calcium lead strontium cuprate; Bi(2223) superconducting thick films on Ba2GdNbO6 **perovskite** ceramic substrates and properties of substrate and film)
IT 116739-98-1, Bismuth calcium copper lead strontium oxide ((Bi,Pb)2Sr2Ca2Cu3O10+x thick films; Bi(2223) superconducting thick films on Ba2GdNbO6 **perovskite** ceramic substrates and properties of substrate and film)
IT **12047-52-8**, Barium gadolinium niobium oxide (Ba2GdNbO6)
(substrates; Bi(2223) superconducting thick films on Ba2GdNbO6 **perovskite** ceramic substrates and properties of substrate and film)
RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 7 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 129:338424 HCA Full-text
TI Superconducting YBa2Cu3O7-δ-Ag thin films (Tc(0) = 90 K) by pulsed laser deposition on polycrystalline Ba2NdNbO6; a novel substrate for Yba2Cu3O7-δ films
AU Kurian, Jose; John, Asha M.; Sajith, Poo K.; Koshy, Jacob; Pai, Subash P.; Pinto, Richard
CS Regional Research Laboratory, CSIR, Trivandrunm, 695 019, India
SO Japanese Journal of Applied Physics, Part 2: Letters (**1998**), 37(10A), L1144-L1147
CODEN: JAPLD8; ISSN: 0021-4922
PB Japanese Journal of Applied Physics
DT Journal
LA English
AB The development and characterization of Ba2NdNbO6, a novel ceramic substrate material for YBa2Cu3O7-δ superconductor, are reported. Ba2NdNbO6 has a complex cubic **perovskite** structure [A2(BB')O6] with lattice const. a 8.573 Å. The dielec. properties of Ba2NdNbO6 are in a range suitable for its use as a substrate for microwave applications. Ba2NdNbO6 has a **thermal expansion coeff.** of 8.6 + 10-6°C-1 and a thermal cond. of 87 W m-1 K-1. Superconducting YBa2Cu3O7-δ-Ag thin films were grown in situ on polycryst. Ba2NdNbO6 by pulsed laser ablation technique and the optimum conditions were established. The films exhibited (001) orientation of an orthorhombic YBa2Cu3O7-δ phase and gave a zero resistivity superconducting transition [TC(0)] at 90 K with a transition width of .apprx.1.5 K and JC .apprx. 3 + 105A/cm2 at 77 K.
IT **12231-43-5P**, Barium neodymium niobium oxide (Ba2NdNbO6)
(prepn. and properties Ba2NdNbO6--a novel substrate for superconducting YBa2Cu3O7-δ-Ag thin films)
RN 12231-43-5 HCA
CN Barium neodymium niobium oxide (Ba2NdNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1

Nd	1	7440-00-8

CC 76-4 (Electric Phenomena)
IT Dielectric constant
Dielectric properties
Electric resistance
Laser ablation
Perovskite-type crystals
Polycrystalline materials
Superconducting critical temperature
Superconductors
Thermal conductivity
X-ray diffraction
(prepn. and properties Ba2NdNbO6--a novel substrate for superconducting YBa2Cu3O7-δ-Ag thin films)
IT 7440-22-4P, Silver, properties **12231-43-5P**, Barium neodymium niobium oxide (Ba2NdNbO6) 109064-29-1DP, Barium copper yttrium oxide (Ba2Cu3YO7), oxygen-deficient
(prepn. and properties Ba2NdNbO6--a novel substrate for superconducting YBa2Cu3O7-δ-Ag thin films)
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 8 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 128:135134 HCA Full-text
TI Epitaxial YBa2Cu3O7-δ/Ag thin films (Jc = 6+106 A/cm2) on epitaxial films of Ba2LaNbO6, a new **perovskite** substrate, by pulsed laser ablation
AU Pai, S. P.; Jasudasan, J.; Apte, P. R.; Pinto, R.; Kurian, J.; Sajith, P. K.; James, J.; Koshy, J.
CS Tata Institute of Fundamental Research, Mumbai 400 005, India
SO Physica C: Superconductivity (Amsterdam) (**1997**), 290(1&2), 105-108
CODEN: PHYCE6; ISSN: 0921-4534
PB Elsevier Science B.V.
DT Journal
LA English
AB Ba2LaNbO6, a new **perovskite** ceramic substrate material for YBa2Cu3O7-δ was grown epitaxially on (100) LaAlO3 from a **sintered** Ba2LaNbO6 pellet by pulsed laser ablation. The optimum substrate temp. for the epitaxial growth of Ba2LaNbO6 on LaAlO3 is 780° for a laser energy d. of 2.6 J/cm2. The epitaxial nature of the Ba2LaNbO6 film was confirmed by x-ray diffraction and AFM studies. A superconducting YBa2Cu3O7-δ/Ag film grown in situ on epitaxial Ba2LaNbO6 film gave Tc(0)=90 K with a sharp transition of ΔT = 0.4 K. The YBa2Cu3O7-δ/Ag films exhibited excellent (001) orientation of an orthorhombic YBa2Cu3O7-δ phase and showed almost perfect metallic behavior in the normal state with resistance ratio (R300 K/R100 K) = 2.95. Crit. c.d. of 6 + 106 A/cm2 at 77 K was consistently obtained for the YBa2Cu3O7-δ/Ag films deposited on epitaxial Ba2LaNbO6 films. The implications are discussed.
IT **12231-38-8**, Barium lanthanum niobium oxide (Ba2LaNbO6)
(epitaxial barium copper yttrium oxide/silver thin films on epitaxial films of barium lanthanum niobium oxide by pulsed laser ablation)
RN 12231-38-8 HCA
CN Barium lanthanum niobium oxide (Ba2LaNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
La	1	7439-91-0

CC 76-4 (Electric Phenomena)
Section cross-reference(s): 75
IT Epitaxial films

Perovskite-type crystals
Superconducting films
Vapor phase epitaxy
(epitaxial barium copper yttrium oxide/silver thin films on epitaxial films of barium lanthanum niobium oxide by pulsed laser ablation)

IT **12231-38-8**, Barium lanthanum niobium oxide (Ba2LaNbO6)
(epitaxial barium copper yttrium oxide/silver thin films on epitaxial films of barium lanthanum niobium oxide by pulsed laser ablation)

AN 128:122460 HCA Full-text
TI Development and dielectric properties of Ba2-xSrxDyTaO6 (x = 0, 1, and 2) substrates for YBa2Cu3O7-δ films
AU Babu, T. G. N.; Koshy, J.
CS Regional Research Laboratory (CSIR), Trivandrum, 695019, India
SO Journal of Solid State Chemistry (1997), 133(2), 522-528
CODEN: JSSCBI; ISSN: 0022-4596
PB Academic Press
DT Journal
LA English
AB A group of complex **perovskites** Ba2-xSrxDyTaO6 (x = 0, 1 and 2) was synthesized, **sintered**, and developed. These ceramics are isostructural, having a complex cubic **perovskite** crystal structure of A2(BB')O6-type compds., and the values of lattice const. were in the range 0.826 to 0.844 nm. The moderately low values of dielec. const. and loss factor for Ba2-xSrxDyTaO6 ceramics are in the range suitable for their use as substrates for microwave applications of superconducting films. The value of dielec. const. decreased with increasing Sr content for Ba. The superconducting YBCO showed no chem. reaction with these ceramics under severe heat treatment and the superconducting properties of YBCO were unaffected by the addn. of 20 vol.% substrate material in YBCO as composites. The YBCO thick films fabricated on ceramic Ba2-xSrxDyTaO6 specimens by dip-coating and partial melting techniques were textured, showing (001) orientation with a Tc(0) of 90 K. Plate-like and needle-like grain growth over a wide area of thick films was obsd. by SEM studies.
IT **12159-34-1P**, Dysprosium strontium tantalum oxide (DySr2TaO6)
12231-20-8P, Barium dysprosium tantalum oxide (Ba2DyTaO6)
(development and crystal structure and dielec. properties of Ba2-xSrxDyTaO6 substrates for YBa2Cu3O7-δ films)
RN 12159-34-1 HCA
CN Dysprosium strontium tantalum oxide (DySr2TaO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Dy	1	7429-91-6

RN 12231-20-8 HCA
CN Barium dysprosium tantalum oxide (Ba2DyTaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Ta	1	7440-25-7
Dy	1	7429-91-6

CC 76-10 (Electric Phenomena)
Section cross-reference(s): 75
IT **12159-34-1P**, Dysprosium strontium tantalum oxide (DySr2TaO6)
12231-20-8P, Barium dysprosium tantalum oxide (Ba2DyTaO6)
201800-32-0P

(development and crystal structure and dielec. properties of
$Ba_{2-x}Sr_xDyTaO_6$ substrates for $YBa_2Cu_3O_{7-\delta}$ films)
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L62 ANSWER 10 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 128:25781 HCA Full-text
TI Ba2GdTaO6, a ceramic substrate for $YBa_2Cu_3O_{7-\delta}$ films
AU Babu, T. G. N.; Koshy, J.
CS Regional Research Laboratory (CSIR), Trivandrum, 695 019, India
SO Materials Letters (1997), 33(1,2), 7-11
CODEN: MLETDJ; ISSN: 0167-577X
PB Elsevier
DT Journal
LA English
AB The ceramic Ba2GdTaO6 has been developed as a single phase material with high **sintered** d. and stability by solid state reaction method. It exhibited a complex cubic **perovskite** of A2(BB')O6-type crystal structure with a lattice const. of 8.47 Å. The values of dielec. const. and loss factor for Ba2GdTaO6 specimens are moderately low and are comparable to those of MgO for its use as substrate for microwave applications of superconducting films. The superconducting YBa2Cu3O7-.vdelta. (YBCO) remained chem. stable with Ba2GdTaO6 even under severe heat treatment, and the superconducting properties of YBCO are unaffected by the addn. of Ba2GdTaO6 up to 20 vol% in YBCO in the form of composites. Fabrication of YBCO thick films with superconducting zero resistance transition, Tc(o) of 90 K demonstrated the use of Ba2GdTaO6 as a suitable substrate for YBa2Cu3O7-.vdelta. superconducting films.
IT **12231-34-4**, Barium gadolinium tantalum oxide (Ba2GdTaO6)
(Ba2GdTaO6, a ceramic substrate for $YBa_2Cu_3O_{7-\delta}$ films)
RN 12231-34-4 HCA
CN Barium gadolinium tantalum oxide (Ba2GdTaO6) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Gd	1	7440-54-2
Ba	2	7440-39-3
Ta	1	7440-25-7

CC 57-2 (Ceramics)
Section cross-reference(s): 76
IT **12231-34-4**, Barium gadolinium tantalum oxide (Ba2GdTaO6)
107539-20-8, Barium copper yttrium oxide
(Ba2GdTaO6, a ceramic substrate for $YBa_2Cu_3O_{7-\delta}$ films)

L62 ANSWER 11 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 126:10756 HCA Full-text
TI Ba2RETaO6 (RE = Pr, Nd, Eu, and Dy), a group of chemically stable substrates for $YBa_2Cu_3O_{7-\delta}$ films
AU Babu, T. G. N.; Koshy, J.
CS Regional Res. Lab., CSIR, Trivandrum, 695019, India
SO Journal of Solid State Chemistry (1996), 126(2), 202-207
CODEN: JSSCBI; ISSN: 0022-4596
PB Academic
DT Journal
LA English
AB A group of complex **perovskites**, Ba2RETaO6 (where RE = Pr, Nd, Eu, and Dy) has been synthesized and **sintered** as single phase materials with high **sintered** d. and stability by solid state reaction. All compds. were found to be isostructural, having a complex cubic **perovskite** crystal structure of the general formula A2(BB')O6 with the lattice const. value 8.55-8.44 Å. The values of the dielec. const. and the loss factor for these materials are in the range suitable for the use as substrates for microwave applications of superconductor films. The $YBa_2Cu_3O_{7-\delta}$ superconductor showed no chem. reaction with Ba2RETaO6 ceramics even when they were mixed in composites of the form 80 vol% YBCO-20 vol% YBCO-20 vol% Ba2RETaO6 and processed in air up to 1223 K. All the composites showed a Tc(0) of 92 K. The YBCO thick films fabricated on polycryst. Ba2RETaO6 specimens by dip coating and partial melting techniques showed (00l) orientation with Tc(0) of 92 K.
IT **12231-20-8P**, Barium dysprosium tantalum oxide Ba2dyTaO6

12231-49-1P, Barium neodymium tantalum oxide Ba2ndTaO6
(substrate; prepn. and properties of Ba2RETaO6 (RE = Pr, Nd, Eu, and Dy) dielecs. as chem. stable substrates for YBa2Cu3O7-δ films)

RN 12231-20-8 HCA

CN Barium dysprosium tantalum oxide (Ba2DyTaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Ta	1	7440-25-7
Dy	1	7429-91-6

RN 12231-49-1 HCA

CN Barium neodymium tantalum oxide (Ba2NdTaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Ta	1	7440-25-7
Nd	1	7440-00-8

CC 57-2 (Ceramics)
Section cross-reference(s): 76

IT Electric **insulators**
(barium rare earth tantalate; prepn. and properties of Ba2RETaO6 (RE = Pr, Nd, Eu, and Dy) dielecs. as chem. stable substrates for YBa2Cu3O7-δ films)

IT **12231-20-8P**, Barium dysprosium tantalum oxide Ba2dyTaO6
12231-22-0P, Barium europium tantalum oxide Ba2euTaO6
12231-49-1P, Barium neodymium tantalum oxide Ba2ndTaO6
12231-54-8P, Barium praseodymium tantalum oxide Ba2pRTaO6
(substrate; prepn. and properties of Ba2RETaO6 (RE = Pr, Nd, Eu, and Dy) dielecs. as chem. stable substrates for YBa2Cu3O7-δ films)

L62 ANSWER 12 OF 19 HCA COPYRIGHT 2007 ACS on STN

AN 125:282858 HCA Full-text

TI Microwave dielectric properties of CaTiO3-Ca(Al1/2Ta1/2)O3 ceramics

AU Kucheiko, Sergey; Choi, Ji-Won; Kim, Hyun-Jai; Jung, Hyung-Jin

CS Division of Ceramics, Korea Inst. of Science and Technology, Seoul, 130-650, S. Korea

SO Journal of the American Ceramic Society (1996), 79(10), 2739-2743
CODEN: JACTAW; ISSN: 0002-7820

PB American Ceramic Society

DT Journal

LA English

AB The microwave dielec. properties of CaTi1-x(Al1/2Ta1/2)xO3 solid solns. ($0.3 \le x \le 0.5$) have been investigated. The ceramic samples had **perovskite** structures similar to CaTiO3. The particle substitution of Ti^{4+} by a coupled Al^{3+}/Ta^{5+} permitted improvement of the quality factor Q. The dielec. const. (εr) and temp. coeff. of resonant frequency (τf) decrease rapidly with an increase of x. A new high-quality microwave dielec. material was found at $x = 0.46$ with $\varepsilon r = 46.5$, $Q.f = 27300$ GHz, and $\tau f = 0$ ppm/°C. The relationship between microstructures and dielec. properties is presented.

IT **12250-60-1**, Aluminum calcium tantalum oxide (AlCa2TaO6)
(ceramics; microwave dielec. properties of CaTiO3-Ca(Al1/2Ta1/2)O3 ceramics)

RN 12250-60-1 HCA

CN Aluminum calcium tantalum oxide (AlCa2TaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Ta	1	7440-25-7
Al	1	7429-90-5

CC 57-2 (Ceramics)
Section cross-reference(s): 76
IT Electric **insulators** and Dielectrics
(ceramic, calcium titanate-calcium aluminum tantalate; microwave dielec. properties of CaTiO3-Ca(Al1/2Ta1/2)O3 ceramics)
IT 12049-50-2, Calcium titanate CaTiO3 **12250-60-1**, Aluminum calcium tantalum oxide (AlCa2TaO6)
(ceramics; microwave dielec. properties of CaTiO3-Ca(Al1/2Ta1/2)O3 ceramics)

L62 ANSWER 13 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 120:206003 HCA Full-text
TI Rare-earth barium niobates: a new class of potential substrates for YBa2Cu3O7-δ superconductor
AU Koshy, Jacob; Kurian, Jose; Thomas, Jijimon K.; Yadava, Yogendra P.; Damodaran, Alathoor D.
CS Reg. Res. Lab., Trivandrum, 695 019, India
SO Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (1994), 33(1A), 117-21
CODEN: JAPNDE; ISSN: 0021-4922
DT Journal
LA English
AB A class of complex **perovskites** RBa2NbO6 (R = Pr, Nd, Sm, Eu) were **sintered** as single phase materials having a high **sintered** d. and stability, for their use as substrates for YBa2Cu3O7-δ superconductors. The structure of these materials was studied by x-ray diffraction, and all of them are isostructural having a cubic **perovskite** structure. These newly developed materials do not react with YBa2CuO7-δ superconductors even after annealing a 1:1 vol mixt. at 950°C for 15 h. The presence of RBa2NbO6 ≤20 vol.% in the YBa2Cu3O7-δ-RBa2NbO6 composite did not show any detrimental effect on the superconducting transition temp. of YBa2Cu3O7-δ. Dielec. const. and loss factor of RBa2NbO6 are in the range suitable for their use as substrates for microwave applications. Superconducting YBa2Cu3O7-δ thick films screen-printed on these new substrates gave a zero transition temp. Tc0 ≈ 92 K and c.d. ≈ 2 + 105 A/cm2 at 77 K.
IT **12231-43-5**, Barium neodymium niobium oxide (Ba2NdNbO6)
(substrate, for barium yttrium cuprate superconductor)
RN 12231-43-5 HCA
CN Barium neodymium niobium oxide (Ba2NdNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
Nd	1	7440-00-8

CC 76-4 (Electric Phenomena)
Section cross-reference(s): 57, 66
IT **12231-43-5**, Barium neodymium niobium oxide (Ba2NdNbO6)
12231-44-6, Barium niobium praseodymium oxide (Ba2NbPrO6)
12231-46-8, Barium niobium samarium oxide (Ba2NbSmO6) 12280-07-8, Barium europium niobium oxide (Ba2EuNbO6)
(substrate, for barium yttrium cuprate superconductor)

L62 ANSWER 14 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 111:236073 HCA Full-text
TI Preparation of **perovskite**-type metal oxide powder

IN Ozaki, Yoshiharu; Tomuro, Noboru; Ishiguchi, Isao
PA Mitsubishi Mining and Cement Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 01119515	A	19890511 <--	JP 1988-99540	19880422

PRAI JP 1988-99540 19880422 <--

AB A method for prepg. **perovskite**-type metal oxide of formula A(BX)O3 (A is Ca; B is ≥1 metal of rare earth elements, actinides, Co, Mn, Ni, Rh, In, Ga, V, Cr, and Al; X is Sb) comprises reacting the 3 alkoxides of the corresponding metal A, B, and X in an org. solvent at 0-100°, and then hydrolyzing the reaction product. Thus, a 3:1:2 Ba-Zn-Nb isopropoxide mixt. was dispersed in 500 mL C6H6, reacted at 60° for 1 h, pptd., filtered and dried at 70° for 10 h to obtain a white power, which was then hydrolyzed and **sintered** at 600° to give a Ba(Zn1/2Nb2/3)O3 powder (av. diam. ≤0.1 μm).

IT **12231-34-4P 12231-39-9P**
(**perovskite**-type, prepn. of, by hydrolysis of alkoxide mixts.)

RN 12231-34-4 HCA
CN Barium gadolinium tantalum oxide (Ba2GdTaO6) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Gd	1	7440-54-2
Ba	2	7440-39-3
Ta	1	7440-25-7

RN 12231-39-9 HCA
CN Barium lanthanum tantalum oxide (Ba2LaTaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Ta	1	7440-25-7
La	1	7439-91-0

IC ICM C01G030-00
ICS C01G031-00; C01G033-00; C01G035-00; C01G037-00; C01G045-00; C01G051-00; C01G053-00
CC 49-3 (Industrial Inorganic Chemicals)
ST **perovskite** metal oxide powder prepn; barium zinc niobium oxide **perovskite**
IT 12022-58-1P, Iron lead niobium oxide (FePb2NbO6) 12057-57-7P, Lead magnesium niobium oxide (PbMg0.33Nb0.67O3) 12201-40-0P 12231-22-0P **12231-34-4P 12231-39-9P** 12231-61-7P 12231-81-1P, Barium magnesium tantalum oxide (BaMg0.33Ta0.67O3) 12231-88-8P 12299-93-3P 12506-06-8P 58694-28-3P 60936-44-9P
(**perovskite**-type, prepn. of, by hydrolysis of alkoxide mixts.)

L62 ANSWER 15 OF 19 HCA COPYRIGHT 2007 ACS on STN

AN 105:89774 HCA Full-text
TI Dielectric ceramic compositions
IN Ookawa, Takashi; Yokoe, Yoshio
PA Kyocera Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 61055804	A	19860320	JP 1984-177270	19840825 <--
JP 05027202	B	19930420		
US 4593008	A	19860603	US 1985-768620	19850823 <--

PRAI JP 1984-177270 19840825 <--

AB The compns. have a **perovskite**-type crystal structure and the compn. Ba(Ndx/2Lay/2Nb1/2)O3 (I; $0 \le x \le 1$; $0 \le y \le 1$; $0 \le z \le 1$; $x + y + z = 1$), high dielec. consts. (ε) and small dielec. losses (tan δ)). Thus, BaCO3, Nd2O3, La2O3, Y2O3, and Nb2O5 were wet blended, calcined 2 h at 1300°, pelletized, compressed at .apprx.800 kg/cm2, and fired 2 h at 1400-1700° to form a ceramic compn. (I; x = 0.6, y = z = 0.2) having ε 38.9, tan δ 2.60 + 10-4, and temp. coeff. -11.0 ppm/degree compared with 36.4, 2.94 + 10-4, and +144.4, resp., for I (x = y = 0, z = 1).

IT **12231-38-8D**, solid solns. with barium neodymium niobium oxide and barium niobium yttrium oxide **12231-43-5D**, solid solns. with barium lanthanum niobium oxide and barium niobium yttrium oxide
(dielec. ceramics from)

RN 12231-38-8 HCA
CN Barium lanthanum niobium oxide (Ba2LaNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
La	1	7439-91-0

RN 12231-43-5 HCA
CN Barium neodymium niobium oxide (Ba2NdNbO6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
Nd	1	7440-00-8

IC ICM H01B003-12
ICA H01P007-10
CC 76-10 (Electric Phenomena)
Section cross-reference(s): 57
ST dielec ceramic barium oxide; rare earth barium oxide dielec; **perovskite** dielec ceramic; neodymium barium oxide dielec ceramic; lanthanum barium oxide dielec ceramic; yttrium barium oxide dielec ceramic; niobium barium oxide dielec ceramic

IT Electric **insulators** and Dielectrics
(barium niobate ceramics)
IT **Perovskite**-type crystals
(barium rare earth niobium oxides, for dielec. ceramic compns.)
IT **12231-38-8D**, solid solns. with barium neodymium niobium oxide and barium niobium yttrium oxide **12231-43-5D**, solid solns. with barium lanthanum niobium oxide and barium niobium yttrium oxide 12231-48-0D, solid solns. with barium neodymium niobium oxide and barium lanthanum niobium oxide
(dielec. ceramics from)

L62 ANSWER 16 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 88:82041 HCA Full-text
TI Study of the physicochemical properties of perovskitelike calcium tantalates
AU Fedorov, N. F.; Mel'nikova, O. V.; Smirnov, Yu. N.
CS Leningr. Tekhnol. Inst., Leningrad, USSR
SO Izvestiya Akademii Nauk SSSR, Neorganicheskie Materialy (1977), 13(12), 2148-51
CODEN: IVNMAW; ISSN: 0002-337X
DT Journal
LA Russian
AB **Perovskite** of Ca2TaLnO6 (Ln = La, Nd, Sm, Gd, Er, Lu) were synthesized by **sintering.** All of these compds. are characterized by high thermal stability, rather high values of refractive index, and the absence of polymorphic transformation. Samples contg. La, Gd, and Lu luminesce in the long-wavelength region of the optical range. The structural and physicochem. properties (**m.p.**, d., refractive index, microhardness, photoluminescence) of the Ca2TaLnO6 are related to the nature of the entrance of the rare-earth ion into the crystal lattice.
IT **12138-66-8 12138-72-6 12138-79-3**
12138-88-4 12525-25-6
(crystal structure and physicochem. properties of)
RN 12138-66-8 HCA
CN Calcium erbium tantalum oxide (Ca2ErTaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Er	1	7440-52-0
Ta	1	7440-25-7

RN 12138-72-6 HCA
CN Calcium gadolinium tantalum oxide (Ca2GdTaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Gd	1	7440-54-2
Ta	1	7440-25-7

RN 12138-79-3 HCA
CN Calcium lanthanum tantalum oxide (Ca2LaTaO6) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Ta	1	7440-25-7
La	1	7439-91-0

RN 12138-88-4 HCA
CN Calcium neodymium tantalum oxide (Ca_2NdTaO_6) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Ta	1	7440-25-7
Nd	1	7440-00-8

RN 12525-25-6 HCA
CN Calcium lutetium tantalum oxide (Ca_2LuTaO_6) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Ta	1	7440-25-7
Lu	1	7439-94-3

CC 75-4 (Crystallization and Crystal Structure)
IT **12138-66-8** **12138-72-6** **12138-79-3**
12138-88-4 12138-91-9 **12525-25-6**
(crystal structure and physicochem. properties of)

L62 ANSWER 17 OF 19 HCA
AN 88:30654 HCA Full-text
TI Some properties of complex **perovskites** of M_2TaNdO_6 type
AU Fedorov, N. F.; Mel'nikova, O. V.; Smirnov, Yu. N.
CS Leningr. Tekhnol. Inst., Leningrad, USSR
SO Zhurnal Neorganicheskoi Khimii (1977), 22(11), 3158-60
CODEN: ZNOKAQ; ISSN: 0044-457X
DT Journal
LA Russian
AB The prepn. of M_2TaNdO_6, where M is Ca, Sr, or Ba, is described. The structures, refractive indexes, d., m.ps., and microhardnesses were detd. The compds. were prepd. from mixts. of MCO_3 with Nd_2O_3 and Ta_2O_5 heated at 1100°, aged at 80° for 4 h, and pressed at 500 kg in H_2O at 1300-1600° for 30 h. The **m.p.** increased as the at. no. of M increased. The microhardness of all samples was essentially the same. The Ca and Sr compds. were triclinic and the Ba compd. was orthorbomic.
IT **12138-88-4** **12164-68-0** **12231-49-1**
(crystal structure and properties of)
RN 12138-88-4 HCA
CN Calcium neodymium tantalum oxide (Ca_2NdTaO_6) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ca	2	7440-70-2
Ta	1	7440-25-7
Nd	1	7440-00-8

RN 12164-68-0 HCA
CN Neodymium strontium tantalum oxide ($NdSr_2TaO_6$) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	6	17778-80-2
Ta	1	7440-25-7
Sr	2	7440-24-6
Nd	1	7440-00-8

RN 12231-49-1 HCA
CN Barium neodymium tantalum oxide (Ba2NdTaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Ta	1	7440-25-7
Nd	1	7440-00-8

CC 75-5 (Crystallization and Crystal Structure)
Section cross-reference(s): 73
ST structure alk earth neodymium tantalate; microhardness tantalate; index refraction tantalate; **melting point** tantalate; calcium neodymium tantalate; strontium neodymium tantalate; barium neodymium tantalate
IT Crystal structure
Melting point
Refractive index and Optical refraction
(of alk. earth neodymium tantalate)
IT **12138-88-4 12164-68-0 12231-49-1**
(crystal structure and properties of)

L62 ANSWER 18 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 55:46675 HCA Full-text
OREF 55:8991a-d
TI Physical-chemical investigation of the formation of ferro-electrics with complex composition and **perovskite** structure
AU Agranovskaya, A. I.
SO Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya (**1960**), 24, 1275-81
CODEN: IANFAY; ISSN: 0367-6765
DT Journal
LA Unavailable
AB Compds. (38) were synthesized with the formulas: [(A1+)1/2(A2+++)1/2]B4+O3(A1 = Na, K; A2 = Bi, La; B = Ti); A++[(B1++)1/3(B25+)2/3] O3 (A = Ba, Sr, Ca, Pb; B1 = Ni, Zn, Mg, Mn, Ca, Cu; B2 = Nb, Ta); A1++[(B1+++)1/2(B25+)1/2]O3 (A1 = Ba, Pb; B1 = Al, Ga, Sc, Yb, Fe; B2 = Nb, Ta); A1++[(B1++)1/2(B26+)1/2]O3 (A1 = Ba, Pb; B1 = Mg, Ni, Ca; B2 = W); A1++[(B1+++)2/3 (B26+)1/3]O3 (Pb,Fe2/3W1/3O3); and A1+++[(B1++)1/2(B24+)1/2]O3 LaMg1/2Ti1/2O3. Presintering and **sintering** temps., dielec. const., tan δ, lattice parameters, and lattice type are tabulated for all compds. **Perovskite** structures are formed in every group. No ordering of ions was obsd. in x-ray pictures. The measured d. of several compds. was the same as that calcd. from x-ray data; anal. results agree with the formulas. The mechanism of formation of complex compds. was investigated on (a) PbNi1/3Nb2/3O3, (b) PbFe1/2Nb1/2O3, (c) PbFe2/3W1/3O3, and (d) Pb2MgWO6. In (a) and (b) the low-temp. phase has pyrochlorite structure; **perovskite** lines appear at higher temps. In (d) the 1st phase is scheelite, in (c) it is pyrochlorite. Pb niobates (3PbO.Nb2O5 and 2PbO.Nb2O3) also go through several phases with increasing temp. Chem. anal. for free Pb indicates strong binding at 600-700°.
IT **122021-23-2 122021-24-3**
(Derived from data in the 6th Collective Formula Index (1957-1961))
RN 122021-23-2 HCA
CN Aluminum barium niobium oxide (AlBa2NbO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3

Nb	1	7440-03-1
Al	1	7429-90-5

RN 122021-24-3 HCA
CN Aluminum barium tantalum oxide ($AlBa_2TaO_6$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Ta	1	7440-25-7
Al	1	7429-90-5

CC 2 (General and Physical Chemistry)
IT Dielectric loss
(of ferroelec. substance, of **perovskite** type)
IT Dielectric constants
(of ferroelec. substances, of **perovskite** type)
IT Crystal structure
(of ferroelecs., of **perovskite** type)
IT Ferroelectric substances
(prepn. and physicochem. properties of **perovskite**-type)
IT 12023-29-9 12036-92-9 12048-25-8 12059-61-9 12231-45-7
12231-56-0 12233-00-0 12359-08-9 12372-48-4 12410-38-7
12448-95-2 12629-47-9 26443-96-9 51956-95-7 59908-24-6
60688-23-5 61179-30-4 61179-31-5 **122021-23-2**
122021-24-3 127711-30-2
(Derived from data in the 6th Collective Formula Index
(1957-1961))

L62 ANSWER 19 OF 19 HCA COPYRIGHT 2007 ACS on STN
AN 54:41663 HCA Full-text
OREF 54:8185f-i
TI Dielectric polarization of a series of compounds of complex composition
AU Smolenskii, G. A.; Agranovskaya, A. I.
CS Inst. Semiconductors, Leningrad
SO Fizika Tverdogo Tela (Sankt-Peterburg) (**1959**), 1, 1562-72
CODEN: FTVTAC; ISSN: 0367-3294
DT Journal
LA Unavailable
AB The conditions for ions Ai and Bi to form a **perovskite** lattice (Ai)(Bi)O3 are listed as equations; in particular the valences nAi = 1, 2, 3, and nBi = 1, 2, 3, 4, 5, 6, and the av. radii .hivin.rA + ro = t√2(.hivin.rB + ro) with t varying from 0.80 to 1.05. A table is shown, indicating all possible ion combinations leading to 4-component **perovskite** structure materials. It is shown also that solid solns. of such compds. will have **perovskite** structures. The mixts. that would have the following stoichiometric compns. were **sintered**: Ba(Ta0.5,Al0.5)O3; Ba(Nb0.5Al0.5)O3; Pb(Ta0.5Al0.5O3; Pb(Mg0.5W0.5)O3; (La0.5, Na0.5)TiO3; (La0.5,-V0.5)TiO3; (Bi0.5,Na0.5)TiO3; Bi0.5, K0.5)TiO3; Ba(Ni1/3,-Nb2/3)O3; Pb(Ni1/3,Nb2/3O3; Pb(Mg1/3, Nb2/3)O3; Ba(Ni1/3,-V2/3)O3; (Bi,Na)Ta2O7; (Bi,Na)Nb2O7; (Na4/3, Ce2/3)Nb2O7; Pb(W,Ti)O6; Bi(Ta,Ti)O6; Bi(Nb,Ti)O6(Bi0.5, Na0.5)-Nb2O6. Pb3(Mg,Nb2)O9 (I) (9000) and Pb3(Ni, Nb2)O9(II) (650) have the highest dielec. consts. ε; in these 2 compds. the ions are distributed in sublattices. The lattice consts. of these 2 compds. are 4.04 and 4.03 A. ε of I has a max. at -15° and tan δ has a max. at -35°. Compd. I is seignettoelec. ε and tan δ of II have a flat max. In II relaxation processes are due to electron transitions and the dielec. polarization of II is detd. by the seignettoelectricity and the relaxation properties. Solid solns. of II with Bi3Ni2NbO9 and Bi2NiNb2O9, also were investigated.
IT **122021-23-2 122021-24-3**
(Derived from data in the 6th Collective Formula Index
(1957-1961))
RN 122021-23-2 HCA
CN Aluminum barium niobium oxide ($AlBa_2NbO_6$) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	6	17778-80-2
Ba	2	7440-39-3
Nb	1	7440-03-1
Al	1	7429-90-5

RN 122021-24-3 HCA
CN Aluminum barium tantalum oxide (AlBa2TaO6) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	6	17778-80-2
Ba	2	7440-39-3
Ta	1	7440-25-7
Al	1	7429-90-5

CC 2 (General and Physical Chemistry)
IT Dielectric constants
Dielectric loss
Dielectric relaxation
Polarization
(of **perovskite**-type complex compds.)
IT Ferroelectric substances
(polarization (dielec.) of, of **perovskite** type)
IT 12047-81-3 12048-25-8 12233-00-0 12372-44-0 12372-48-4
61179-31-5 79986-48-4 98743-11-4 121977-34-2 121992-56-1
121992-77-6 121992-78-7 **122021-23-2** **122021-24-3**
129003-18-5
(Derived from data in the 6th Collective Formula Index
(1957-1961))